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CONTENTS OF THE ISSUE

- i. Copyright Notice
 - ii. Editorial Board Members
 - iii. Chief Author and Dean
 - iv. Contents of the Issue
-
1. Terminology and Diachrony: A Comparative Study on Sugar Terminology in Brazilian Portuguese. *1-8*
 2. Two Models to Improve Undergraduate Writing Perception and Capabilities in Plant and Soil Sciences. *9-17*
 3. The use of Filmic Text in English Language Classes: Beyond Emotions a Study Carried out in a Brazilian Public School. *19-34*
 4. Rediscovering the Significance of Environmental Education: A New Type of Environmental Education Found in Picture Books. *35-43*
 5. Factors Leading to School Dropout in Bangladesh: An Empirical Approach. *45-49*
-
- v. Fellows
 - vi. Auxiliary Memberships
 - vii. Preferred Author Guidelines
 - viii. Index



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Terminology and Diachrony: A Comparative Study on Sugar Terminology in Brazilian Portuguese

By Dr. Ivan Pereira De Souza

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Abstract- The aim of this work is to point out and describe Terminology problems related to the diachronic variation of a terminology based on the conceptual analysis¹ of two structures, concerning two process models (sugar plantation and factory) of a same technical area – sugar production, separated by a certain period of time and submitted to constant technological, linguistic and cultural revolutions. For this reason, we described the factors, which interfere in those transformations; the manner that the consolidation level of a social sphere represents its systemic regularity; and we tried to prove, based on a diachronic research, that the dynamics of the speciality subsystems has the same functioning of the one that rules the general language.

Keywords: *terminology; diachronic terminology; brazilian portuguese; sugar production.*

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TERMINOLOGY AND DIACHRONY A COMPARATIVE STUDY ON SUGAR TERMINOLOGY IN BRAZILIAN PORTUGUESE

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Terminology and Diachrony: A Comparative Study on Sugar Terminology in Brazilian Portuguese

Terminologia E Diacronia: Um Estudo Comparativo Sobre A Terminologia Do Açúcar No Português Brasileiro¹

Dr. Ivan Pereira De Souza

Resumo- O objetivo deste trabalho é apontar e descrever problemas de Terminologia referentes à variação diacrônica de uma terminologia, a partir da análise conceitual de duas estruturas referentes a dois modelos de processo (engenho e usina) de uma mesma área técnica – produção de açúcar -, separadas por um espaço determinado de tempo e submetidas a constantes revoluções lingüísticas e culturais. Para tanto, descrevemos quais fatores interferem nessas transformações; em que medida o grau de consolidação de um domínio representa sua sistematicidade; e procuramos comprovar, a partir de pesquisa diacrônica, que a dinâmica dos subsistemas de especialidades renova-se em consonância com a língua geral.

Palavras-chaves: terminologia; terminologia diacrônica; português brasileiro; produção de açúcar.

Abstract- The aim of this work is to point out and describe Terminology problems related to the diachronic variation of a terminology based on the conceptual analysis¹ of two structures, concerning two process models (sugar plantation and factory) of a same technical area – sugar production, separated by a certain period of time and submitted to constant technological, linguistic and cultural revolutions. For this reason, we described the factors, which interfere in those transformations; the manner that the consolidation level of a social sphere represents its systemic regularity; and we tried to prove, based on a diachronic research, that the dynamics of the speciality subsystems has the same functioning of the one that rules the general language.

Keywords: terminology; diachronic terminology; brazilian portuguese; sugar production.

I. INTRODUÇÃO

Efato inquestionável a propriedade que têm as línguas naturais de se renovarem. Em um espaço de tempo relativamente curto, novas palavras

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¹ Artigo baseado em três capítulos da dissertação "Do engenho à usina: estudo diacrônico da terminologia do açúcar" apresentada à Faculdade de Filosofia, Letras e Ciências Humanas da Universidade de São Paulo para a obtenção do título de Mestre em Letras em 2007, sob a orientação da muito estimada Profa. Dra. Ieda Maria Alves, e a quem dedico este trabalho.

surgem, outras quase desaparecem e, muitas vezes, sofrem transformações em sua forma e (ou) em seu significado, alterando as relações conceituais. Com base em uma terminologia de proposta comunicativa, descritiva, acreditamos que as línguas de especialidades, contrariando uma concepção normativa e prescritiva, estão sujeitas às mesmas vicissitudes a que as línguas gerais estão sujeitas.

No presente estudo, trataremos da dinâmica dos vocabulários especializados (neologismos e arcaísmos), que garante a renovação do repertório das ciências e das técnicas de um idioma, analisando como se deram as transformações do vocabulário técnico empregado na fabricação de açúcar, em um espaço determinado de tempo, e suas transformações. Assim, o objetivo desta pesquisa é, assim, apontar e descrever problemas de Terminologia referentes à variação diacrônica de uma terminologia, a partir da análise conceitual de duas estruturas referentes a dois modelos de processo (engenho e usina) de uma mesma área técnica – produção de açúcar - separadas por um momento onde ocorreram grandes transformações tecnológicas e submetidas a constantes revoluções lingüísticas e culturais. Para tanto, descrevemos quais fatores interferem nessas transformações; em que medida o grau de consolidação de um domínio representa sua sistematicidade; e procuramos comprovar, a partir de pesquisa diacrônica, que a dinâmica dos subsistemas de especialidades renova-se em consonância com a língua geral, sob constantes de motivação e velocidade, por exemplo. Assim sendo, transformações nos significados de determinados termos alteram suas relações semânticas.

Por sua importância econômica, cultural, social e política desde o início do Brasil (senão o próprio início), é inegável o espaço da cana-de-açúcar na vida social do brasileiro. Sem dúvida, a cultura do açúcar, presente no território brasileiro desde o século XVI, quando foi trazida de colônias lusitanas na África, já com uma terminologia constituída, segundo Nunes (2002), sofreu e certamente ainda sofrerá diversas transformações no seu repertório terminológico. Devido

a grandes revoluções científicas e tecnológicas a que o século XX serviu de palco, termos como *engenho bangüê* simplesmente não existem mais.

II. A CIVILIZAÇÃO DO AÇÚCAR: ONTEM E HOJE²

Se a partir da segunda metade do século XVI, o que seria o Brasil se estabelecia como o maior produtor mundial de açúcar, na aurora do século XXI, com ¼ da produção mundial, continua sendo. Com a decadência do engenho e o surgimento da usina, a região que antes era tida como inviável concentra hoje o maior pólo produtor do mundo.

O desenvolvimento da região Centro-Sul não se deve apenas ao cultivo da cana. Durante esses cinco séculos, outras culturas se desenvolveram no país (a laranja, o café, o algodão, a pecuária, a avicultura, a soja e, logo atrás do açúcar, o álcool). Todas elas ajudaram a atribuir ao Brasil a alcunha de celeiro do mundo; e, em tempos de auto-suficiência de petróleo, de desenvolvimento da indústria aeronáutica e de máquinas e insumos agrícolas e altas tecnologias em reciclagem, a doce gramínea abre possibilidades para prover uma demanda universal, mais vital do que aquela do 15º século: a produção de energia renovável e ecologicamente responsável (ROSA, 2005, p. 33)

Assim, é impossível ignorar a competência brasileira no cultivo e nas técnicas de manipulação da cana-de-açúcar. Fatores como o êxodo regional, o desenvolvimento de novas técnicas, a criação de cursos e carreiras técnicas e universitárias, científicas e sociais, relações exteriores, etc. atestam claramente a importância desse domínio na formação, no desenvolvimento e no futuro da nossa sociedade. Ainda neste capítulo, veremos em números a grandeza dessa atividade, bem como sua magnitude econômica e suas manifestações literárias.

III. A DINÂMICA DAS LÍNGUAS NATURAIS

Como foi dito anteriormente, é fato que as línguas sofrem transformações ao longo do tempo (diacronia) e do espaço (sincronia). Essas variáveis são responsáveis por transformações significativas em um sistema lingüístico, seja nas diferenças regionais que abrigam a “mesma língua”, seja a forma (léxico e gramática) com que ela se apresenta em diferentes momentos. Portanto, trataremos aqui da renovação lexical, das transformações sofridas por uma terminologia, impulsionadas, principalmente, por fatores extralingüísticos. No nosso caso, parece que foi a revolução tecnológica o fator primordial que influenciou nessas transformações.

A grande revolução tecnológica assistida pelo século XX foi um dos maiores fatores de interferência nas línguas. Segundo Barros (2004, p. 26),

[...] a Revolução Industrial, verificada na Europa nos séculos XVIII e XIX, impôs transformações radicais à civilização mundial, embora em momentos diferentes e de formas diversas. Elemento impulsionador das transformações, o desenvolvimento técnico e científico produziu inúmeros engenhos que revolucionaram o sistema produtivo. A máquina a vapor (1769), cuja força motriz equivalia a dezenas (ou mesmo centenas) de braços humanos, deu maior eficiência e produtividade a diversas atividades, favoreceu os transportes e a comunicação, por meio, por exemplo, da locomotiva e da estrada de ferro (1829). Inúmeros outros inventos e descobertas conduziram a transformações profundas na sociedade ocidental.

As mudanças socioeconômicas e políticas tiveram repercussão em nível vocabular, pois, ainda conforme Barros (2004, p. 26), “a cada nova invenção, a cada nova situação, atividade, produto, serviço, lei etc. surgiram novos termos correspondentes. O universo lexical das línguas transformou-se, ampliando-se substancialmente, o mesmo sucedendo ao conjunto terminológico que, aliás, cresceu em maior proporção” (BARROS, 2004, p. 26).

A isso chamamos renovação lexical, o fator de maior visibilidade entre os que garantem a dinâmica das línguas naturais e, conseqüentemente, das linguagens de especialidade.

a) A dinâmica das linguagens de especialidade: interface com a língua geral

A cada dia novas palavras vêm crescer o léxico de uma língua, enquanto outras caem em desuso e são esquecidas. Alves afirma que “o acervo lexical de todas as línguas vivas se renova. Enquanto algumas palavras deixam de ser usadas e tornam-se arcaicas, uma grande quantidade de unidades léxicas é criada pelos falantes de uma comunidade lingüística”. (ALVES, 1990, p. 5)

É justamente essa dinâmica que permite que a língua permaneça viva. Boa parte dos neologismos de uma língua são criados nas línguas de especialidades. São vários os fatores extralingüísticos que influenciam esse processo, e, durante todo o século XX, a constante e acelerada evolução tecnológica foi o principal responsável por grande parte dos acréscimos e decréscimos vocabulares nas terminologias e no léxico geral da língua portuguesa.

Segundo Barros (2004, p. 26):

A evolução da ciência tem provocado, ao longo da história da humanidade, profundas transformações no modo de viver, de agir, de pensar, de produzir, de ser dos povos, conduzindo a diferentes formas de organização social e política, a novos sistemas de produção. Paralelamente a esse processo, desenvolveu-se um outro de natureza lingüística: cada descoberta ou invento recebe um nome, passa a ser designado por um termo. Verifica-se, assim, um

² FERLINI, M.L.A. *A civilização do açúcar (séculos XVI a XVIII)*. São Paulo: Brasiliense, 1984.

processo de desenvolvimento terminológico tão importante quanto o econômico ou social, no qual a criação neológica é intensa e se dá por diferentes mecanismos lingüísticos.

Ainda que indiretamente, o neologismo com base nas inovações tecnológicas é muitas vezes impulsionado por fatores extralingüísticos. Exemplo disso são as ações de políticas públicas: em alguns estados ou regiões, a cana-de-açúcar não pode sofrer queimada; nesses casos, desenvolvem-se, a cada dia, novas técnicas e suplementos para a colheita (as primeiras colheitadeiras datam de meados do século passado) que respeitem as leis ambientais, o que tem um custo elevado. Por isso, várias regiões ainda seguem o processo “ultrapassado” de queimada, pois, é menos lucrativo utilizar mão-de-obra para a colheita. 85% das canas são colhidas mecanicamente no Centro-Sul, com as máquinas cortando cerca de 500 t por dia enquanto um cortador corta 10 t de cana por dia ou 150 m² por aproximadamente R\$ 25. Desgraçadamente, é muito freqüente um problema também secular: todos os anos, em várias partes do país, recebemos notícias de trabalhadores mortos por exaustão.

As normas sanitárias e conselhos de saúde também têm interferido muito para o surgimento de novos padrões visando à higiene na produção de alimentos.

b) *Metamorfose tecnológica e influências na língua*

O desenvolvimento das linguagens de especialidade suscitou uma adequação das estruturas lexicais e provocou uma espécie de metamorfose tecnológica das línguas que parece ter aumentado a sua criatividade e seu ritmo de inovação. Um dos aspectos mais evidentes observa-se no nível da estrutura morfológica. Outro, não menos importante, e que terá nosso foco, será o nível do significado. O pesquisador português Telmo Verdelho (VERDELHO, 1997, p. 98) trata dessa recursividade semântica³:

As linguagens de especialidade repercutem-se na estruturação semântica de todo o léxico da língua, ressemantizando lexemas ou grupos de vocábulos e perturbando as relações de significado. Lembramos o exemplo clássico de M. Bréal sobre os valores do termo operação no âmbito dos vocabulários médico, militar, financeiro e matemático, e acrescentaremos, para a actualidade, as vicissitudes dos adjetivos ingleses *hard* e *soft* ou os substantivos *mouse* e *window*. O exemplo mais interessante de modificação de um subsistema lexical na história da língua portuguesa, encontra-se na designação dos dias da semana, mas os nomes das estações do ano e das refeições e o vocabulário das cores (este último

certamente por influências tecnoletais) são igualmente elucidativos.

Veremos agora como a Terminologia tem tratado, ou pode tratar, da questão das dinâmicas das línguas naturais e quais as particularidades que devem ser guardadas para o desenvolvimento de métodos em pesquisa diacrônica.

IV. TERMINOLOGIA DIACRÔNICA

Para que se possa discorrer sobre Terminologia Diacrônica, faz-se necessário atentar para o fato de se reconhecer a diacronia nas linguagens de especialidades da mesma forma como é reconhecida na língua geral, isto é, aplicar-se, a estas linguagens, o conceito de lingüística diacrônica segundo Saussure (1995, p. 163): “lingüística diacrônica estuda, não mais as relações entre os termos coexistentes de um estado de língua, mas entre termos sucessivos que se substituem uns aos outros no tempo”.

Embora se insista muito em se repetir que a Terminologia figura como ciência apenas recentemente, e que atualmente muitos de seus executores já passem a reconhecer seu precoce amadurecimento, ainda contamos, até o momento, com discretas discussões e estudos sobre a dinâmica das linguagens de especialidade em um espaço de tempo sucessivo a outro: uma *terminologia histórica* ou *diacrônica*.⁴

Embora este estudo seja um dos poucos que contemplem a terminologia diacrônica no Brasil, em 2002 é publicado em língua portuguesa uma obra muito mais grandiosa: trata-se da Tese de doutorado de Naideia Nunes Nunes, intitulada *O açúcar de cana na ilha da Madeira: do Mediterrâneo ao Atlântico. Terminologia e tecnologias históricas e actuais da cultura açucareira*, que combina o estudo de arquivística histórica, de comparativismo românico e de inquérito lingüístico-etnográfico, reunidos em um glossário.

O glossário contém todos os termos recolhidos na documentação histórica e na documentação oral contemporânea, procurando resolver os numerosos e diversos problemas metodológicos inerentes à elaboração de glossários. Ele está dividido em quatro partes, que separam os termos específicos dos termos gerais, as formas mediterrâneas e os termos da doceria. Assim, esse trabalho se propõe a evidenciar o papel especial da ilha da Madeira na rota do açúcar, nomeadamente no desenvolvimento e difusão dos termos e das técnicas açucareiras no Atlântico.

³ VERDELHO, T. *Terminologia diacrônica* In Institut Universitari de Lingüística Aplicada. La Història dels llenguatges Iberoromànics D'especialitat (segle XVII-XV), Actes del col·loqui. Barcelona 14-17 de maig de 1997. p. 90-111

⁴ É importante mencionar que muito desta pesquisa se orientou em TERMINOLOGIE DIACHRONIQUE, 1998, Bruxelles. *Actes du colloque organisé à Bruxelles les 25 et 26 mars 1988*. Bruxelles: Conseil International de la Langue Française, 1988.

A partir da Madeira, para os Açores, Canárias, Cabo Verde, São Tomé e Brasil são transplantadas tanto as tecnologias primitivas quanto as mais inovadoras, coexistindo, assim, os moinhos rudimentares movidos por bois e escravos e os moinhos hidráulicos de dois eixos de madeira horizontais, que, no Brasil, evoluem para três rolos verticais de madeira, revestidos de ferro, permitindo extrair todo o sumo da cana, passando-a duas vezes entre os eixos e dispensando a prensa (NUNES, 2002).

Neste estudo, a autora conclui que a terminologia e tecnologia açucareiras pouco se modificam, pois, apesar da mecanização, os processos de produção do mel e do açúcar são os mesmos, no que se refere ao cultivo e colheita da cana, à extração do sumo, à cozedura, defecação e concentração do mel, à cristalização do açúcar (agora na caldeira de vácuo), à purga do açúcar (agora realizada nas centrífugas, separando o açúcar do mel ou melaço), ao mestre de açúcar (agora responsável pelo fabrico do açúcar na caldeira de vácuo e nas centrífugas), ao refinar do açúcar e aos tipos de açúcar (NUNES, 2002).

Já que se pretende, em nosso trabalho, analisar, além da transformação histórica dos vocabulários, a consolidação de uma técnica, verificaremos a relação entre o grau de consolidação do domínio e a sistematicidade do repertório terminológico da produção de açúcar no Brasil. Outra especulação que será contemplada é a referência às transformações no signo: mudando os signos, em que medida e intensidade mudam também seus conceitos (significados)? Sendo assim, pode-se falar em terminologia morta?

Assim, nos próximos capítulos, limitamo-nos a uma análise muito mais conceitual do que semântico-morfológica; e, em oposição ao desenvolvimento de métodos sofisticados⁵ de pesquisa em Terminologia Diacrônica, enfocaremos o que de fato se alterou na relação de conceitos, o surgimento de novas tecnologias e a contínua interação entre língua geral e língua de especialidades.

V. METODOLOGIA

Embora contemos com poucos estudos sobre metodologia de pesquisa em Terminologia Diacrônica,⁶ aplicamos as perspectivas de uma terminologia

⁵ Chamamos aqui de métodos sofisticados uma pesquisa mais aprofundada que conte com pesquisa de campo, elaboração e organização de um corpus maior, confecção de fichas terminológicas sob a atenta e constante supervisão de especialistas da área-objeto, etc.

⁶ FINATTO, M.J.B. Terminografia brasileira no final do século XIX: contraponto entre domínios emergentes e consolidados In: KRIEGER, M. G., MACIEL, A. M. B. (Org.). *Temas de terminologia*. São Paulo/Porto Alegre: Ed. Universidade/UFRGS/Humanitas/USP, 2004. p. 197-213.

comunicativa da Escola Catalã, a fim de agregar, por meio de métodos descritivos, língua geral e linguagem de especialidades.

Quanto ao objeto, reconstruímos os dois processos do fabrico de açúcar; organizamos o repertório em campos semânticos, dividimos a trajetória do fabrico de açúcar em dois momentos: engenho e usina; e descrevemos o comportamento de alguns desses termos em suas relações de significado, levando em consideração o percurso histórico e suas intempéries.

a) *Corpus*

Para uma análise comparativa, seria muito difícil precisar a data exata dos primeiros registros das unidades terminológicas, bem como seu desaparecimento do vocabulário empregado no domínio.

Sobre esses temas lemos em Prado Junior (2000, p. 136-7) que:

Os engenhos de açúcar em nada se tinham modificado, e a minuciosa e tão bem feita descrição que deles fez Antonil em princípios do século XVIII ainda se ajustava, tal qual, aos engenhos de cem anos depois. Compare-se, para comprovação, com a descrição igualmente sugestiva de Vilhena. Já me referi ao caso do emprego da bagaceira como combustível, que não se praticava ainda no Brasil, apesar de já ser um processo velho de mais de meio século; a moagem se fazia ainda em aparelhos antiquados, de baixo rendimento, apesar dos progressos da técnica neste assunto, e que já tinham sido substituídos, fazia muito, em outros lugares.

Assim, pareceu-nos melhor reclassificar os termos em dois grandes momentos históricos. Momentos estes que contemplam formas distintas de organização social do trabalho, energia empregada, materiais utilizados, concepções de controle de qualidade e recursos humanos e, principalmente, informação. Como já anunciado, esses dois momentos são: engenho e usina.

Para comparar esses dois momentos, foi necessário reunir a terminologia em uso e reconstruir o processo de produção etapa a etapa, para assim estabelecer e analisar as relações conceituais de um período ao outro.

Durante dois anos foram identificadas e coletadas mais de 200 unidades terminológicas. Destas, noventa pertencentes ao engenho e setenta à usina foram selecionadas e sistematizadas segundo critérios semânticos norteados pela engenharia do processo. Em seguida, descrevemos como se deu a constituição desse *corpus*, suas fontes e critérios.⁷ As

⁷ O *corpus*, ou a lista completa dos termos utilizados para esta pesquisa, estão nos apêndices 1 e 2, bem como o texto integral da dissertação em http://www.fllch.usp.br/dlcv/neo/teses_dissertacoes.php.

unidades terminológicas, ou termos, foram grafadas em itálico para não se confundirem com a metalinguagem empregada na descrição dos processos.

b) *Estrutura conceitual*

Todas as unidades terminológicas recolhidas foram organizadas sistematicamente em uma árvore conceitual ou estrutura conceitual. Sem essa organização, seria muito difícil precisar as relações semânticas e ordenar os conceitos, conforme afirma ALMEIDA (1998, p. 223):

Os estudos em terminologia sempre deram atenção especial aos conceitos e às relações que se estabelecem entre eles dentro de um campo especializado. Esta preocupação é compreensível, já que a Terminologia 'usualmente parte de conceitos e tenta encontrar os termos que lhes possam ser correspondidos (abordagem onomasiológica)' (FINATTO, 1998, p. 212). Ora, os conceitos não estão isolados, fazem parte de um campo especializado e relacionam-se com outros conceitos, formando uma rede ou estrutura conceptual. São estas estruturas conceptuais – representando um conjunto sistematizado dos conceitos – que descrevem um âmbito especializado.

A seqüência em que esses termos aparecem é coerente com sua ordem da cadeia produtiva. Assim, esses termos receberam numeração relativa às suas relações hierárquicas, de 1, isto é, as principais etapas, à etapa 6, geralmente partes ou peças de equipamentos sofisticados.

Depois de analisar cuidadosamente as duas estruturas conceituais, selecionamos – e apresentamos, no próximo capítulo - dois pares de excertos de cada árvore; uma em que as revoluções não foram tantas e tão claras (a moagem) nos dois processos; e outra, totalmente revolucionada (a purga ou a evaporação e a centrifugação).

Outras unidades que chamaram a atenção de maneira que pudessem corroborar nossas impressões também foram analisadas e serão apresentadas no próximo capítulo.

Finalmente, poderão se observar perfeitamente os problemas de terminologia referentes ao nosso objeto, quais sejam, as informações conceituais atestadas pela história dos repertórios. Na verdade, o objetivo primeiro da volta a esse campo da terminologia não é diferente de todos os de uma ciência: elaborar, experimentar e oferecer métodos e técnicas para o desenvolvimento de ferramentas cada vez mais eficazes.

c) *A extensão de um conceito*

Os termos, em sua condição de signos, são unidades, como se viu anteriormente, que apresentam uma face dupla: a da expressão, explicitada por meio da denominação, e a do conteúdo, que representa a noção ou o conceito a que se refere a denominação.

A norma ISO WD 704.1 (1996) *Terminologia: princípios e métodos* define os conceitos e noções como as “construções mentais que servem para classificar os objetos individuais do mundo exterior ou interior através de um processo de abstração mais ou menos arbitrário”.

Esta definição normalizada de conceito permite diferenciar claramente as unidades conceituais propriamente ditas dos objetos da realidade que representam. Os conceitos, que são representações mentais desses objetos, são fruto de um processo de seleção das características relevantes que definem uma classe de objetos e não são objetos individuais. Além disso, o conceito confere ao termo a propriedade de referência. Com os termos, por meio das denominações, referimo-nos à realidade concreta e abstrata, exterior e interior, individual ou coletiva.

Segundo Lyons (1997, p.74):

A extensão de um termo concerne a uma classe de entidades às quais se aplica ou refere um termo, sua compreensão é o conjunto de atributos que caracterizam toda entidade à qual o termo pode ser aplicado. A extensão e a compreensão são inversamente proporcionais uma à outra, no sentido de que quanto maior a extensão de um termo, mais sua compreensão é restrita, e vice-versa.

Assim, este estudo considera os processos e suas etapas como unidades terminológicas, alocadas em primeiro ou até em segundo nível.

VI. COREOGRAFIA DOS CONCEITOS

Como a terminologia escolhida descreve um procedimento, fez-se necessário pôr atenção nos níveis hierárquicos dos termos que constituem o processo de produção. Na tentativa de homogeneizar os mapas, ou estruturas, conceituais, estabelecemos que o primeiro termo da cadeia de produção deveria ser *cana-de-açúcar* e o último deveria ser *açúcar*. Nesse intervalo, no entanto, esperávamos ingenuamente encontrar ocorrências de substituições de vocábulos, desaparecimentos, neologismos e deslizamentos semânticos; no entanto, poucas eram as unidades que apresentavam essas características. Já na organização da cadeia em níveis, constatamos que havia uma realocação de parte dos termos, segundo mudanças conceituais; mas somente era possível encontrar substituição perfeita se considerássemos as etapas e os objetos como um único processo. Para tanto, elegemos o processo de *purga*, no engenho, e da *centrifugação*, na usina.

a) *do processo de purga, no engenho, e da centrifugação, na usina: transformação*

Não só a química dos materiais influenciariam a transformação da nossa máquina perfeita, já que a física é uma grande aliada das inovações. O processo de *purga*, por exemplo, emblemático, em que se utilizava a maior parte da mão-de-obra, foi

completamente substituído, não só pelas novas normas de higienização, mas também por contarmos com equipamentos que desafiam o tempo do processo e, mais uma vez, ocasionando o descarte de mão-de-obra. No processo agora chamado *centrifugação*, um único equipamento é suficiente para transformar a *massa cozida* em cristais de açúcar, liberando o *mel* e o material não-cristalizado: a *centrífuga*.

A respeito das relações hierárquicas de significação, embora a *purga* representasse, no Tomemos, como exemplo, o caso da *purga* (no engenho) e da *centrifugação* (na usina):

Processo de purga - engenho	Processo de centrifugação – usina
5. purga	5. cristalização do açúcar
5.1. purgar	5.1. mel
5.2. casa de purgar	5.2. cristais de açúcar
5.3. primeira purga	5.3. centrifugação da massa
5.1.1. mel	5.3.1. centrifugação da massa A
5.1.2. melado	5.3.2. centrifugação da massa B
5.2. pão-de-açúcar	5.3.3. centrífuga
5.2.1. furação dos pães	5.4. circulação da massa cozida
5.2.1.1. furo	5.5. gafanhoto
5.2.2. quebra das caras dos pães	5.6. afinação
5.2.2.1. cara	
5.3. entaipamento	
5.3.1. macetes	
5.4. segunda purga	
5.4.1. barreamento	
5.4.1.1. lavagem do açúcar	
5.4.1.2. umedecimento da argila	
5.4.2. retirada dos pães da fôrma	

Fonte: SOUZA, 2007

Impiedosamente, avança a engenharia física. O processo de *purga* não só nos parece mais arcádico do que a *centrifugação*, mas também bem mais complexo. Ora, se comparados, os dois processos são realizados com ajuda da física para a retirada do líquido, um por gravidade e outro por centrifugação. Na usina não precisamos de muitos trabalhadores, nem de um edifício de quase cem metros de comprimento, quase vinte de largura, mais de três de altura⁸ e com espaço suficiente para abrigar 2.000 *fôrmas* encaixadas nas extensas *andainas*.

O equipamento usado no processo de *centrifugação* é um dos mais modernizados da usina. Trata-se de um equipamento parecido com um tambor de grande ou médio porte, cujo interior serve de compartimento, revestido, e munido de um rotor do lado externo capaz de girar esse tambor com grande velocidade e de um conjunto de mangueiras para o descarte do *mel*. Daí então o açúcar passa à próxima grande etapa, qual seja, a *secagem*.

Lopes define o principal termo (*equipamento*) do processo como:

⁸ Dimensões da casa de purgar, segundo ANTONIL (p. 211)

engenho, uma das principais etapas do processo produtivo (nível 1), na usina, a *centrifugação* constitui um subprocesso (nível 2) de uma das principais etapas, a *cristalização do açúcar* (nível 1) conforme veremos na sistematização do campo conceitual descrito a seguir. Tal campo apresenta um caso de substituição de um processo ultrapassado por outro, ainda que os objetivos desses processos sejam praticamente os mesmos.

SECADOR DE AÇÚCAR. Dispositivo que retira a umidade do açúcar proveniente da centrífuga, até o valor desejado. Os secadores funcionam fazendo circular ar quente em contra-corrente com o açúcar em movimento. Os principais secadores utilizados nas usinas de açúcar são os de tambor rotativo ou cilíndrico vertical. (LOPES, p. 29)

No engenho, o processo de *purga* demandava um tempo generoso, pois após a etapa de encher as *fôrmas* de açúcar, ou seja, encher de *pão* (*massa cozida*) vasos cerâmicos, com um *furo* na parte inferior, tais pães eram postos a descansar enquanto o *mel* escorria pelo orifício. Em seguida, a *mãe do balcão* fazia às vezes de *esteira sanitária*, para não apenas conduzir o açúcar à etapa de *secagem* como na usina, mas também separar as camadas de açúcar quebrando-o em torrões com um *macete*.

Definitivamente, era a mais importante e complexa das etapas do fabrico, e, segundo Gama (p. 26), a que mais demandou inovações:

A produtividade do trabalho passa a depender não só da habilidade do trabalhador, mas do aperfeiçoamento de suas ferramentas. E no período manufatureiro as ferramentas se diversificam (especializam) e se aperfeiçoam, criando condições para a existência das

máquinas que resultam da combinação de instrumentos simples.

O *purgador* era o “técnico” mais qualificado do setor, subordinado diretamente ao *capitão do açúcar*, e, ironicamente, branco como deveria ser seu melhor produto e gabaritado, como relatou Antonil (p.212):

Onde não há *purgador* (que sempre seria bem tê-lo), preside também na *casa de purgar* o *mestre de açúcar*, a quem pertence julgar quando há de botar o primeiro e o segundo *barro*, nas *fôrmas*, quando se há de umedecer e borrifar mais, ou mesmo, conforme a qualidade do açúcar, e quando se há de tirar o barro e o açúcar das *fôrmas*. Mas ainda que haja *purgador* distinto, com sua soldada, sempre será bem que êste se aconselhe com o mestre, para obrar com maior acêrto, e que tenham ambos entre si toda a boa correspondência, para que fiquem melhor servidos assim o senhor do engenho como os lavradores, e êles mais acreditados em seus ofícios.

Um fato curioso é a alteração conceitual do termo *bagaço* no domínio da usina. Depois de extraído todo o caldo, o *bagaço* serve como combustível na geração de energia que moverá grande parte da usina. Esse recurso, embora já fosse utilizado no engenho (depois que se descobriu a falta de utilidade do *bagaço* como adubo), não era comum, pois a madeira, abundante em nosso território, apresentava maior propriedade de combustão e calor. O que verdadeiramente pertence à usina são os termos que designam controle de qualidade: citamos aqui o *brix*, unidade de medida de aquecimento na etapa de *cozimento* e o *crystaloscópio*, equipamento usado para medir a *crystalização do açúcar*, conforme define Lopes em seu Glossário:

CRISTALOSCÓPIO. Aparelho ótico constituído de lentes de aumento que é adaptado ao cozedor a vácuo, permitindo o acompanhamento visual da formação e crescimento dos cristais de açúcar. (LOPES, p. 11)

b) os operadores

Depois de somente apresentarmos equipamentos e processos, lembramos quem de fato usa essa terminologia, o trabalhador do engenho e da usina, que aqui não chamaremos de especialista, mas sim de *operador*. No engenho, essas funções eram bem definidas, primeiramente pela diferenciação entre trabalhadores livres e trabalhadores escravos.

Assim, em um departamento restrito do engenho, podemos observar vários operadores em suas funções, como descreveu Antonil (p. 213):

No balcão de secar trabalham as mesmas duas mãos, com suas companheiras, que são até dez, estendendo os toldos e quebrando com tolete as lascas e os torrões grandes em outros menores, atrás dos quebradores dos pães. E, na caixaria, ajudam ao caixeiro no pêsso e encaixamento do açúcar as negras e negros que são necessários, como também no pilar, igualar, pregar e marcar.

Metedor, calcanha, tacheiro, caldeireiro e feitor da moenda, por exemplo, são atribuições de um

trabalho semi-artesanal⁹, substituídos hoje por ajudante de serviços gerais, engenheiro de produção agro-industrial, engenheiro de alimentos, engenheiro químico, administrador de empresas, advogado e professor. A formação técnica e acadêmica dos últimos anos tende e certamente tenderá a preparar um profissional versátil com habilidades de desenvolver trabalhos ou executá-los. Qualquer profissional envolvido na área de produção em linha, com conhecimentos no processo, ou desempregados de outras áreas, ocupam as funções que, cada vez mais, referem-se à projeto, operação e manutenção de equipamentos e controle de qualidade.

Por esse fato, o *Glossário de termos técnicos para a indústria sucroalcooleira* não contempla os operadores em sua nomenclatura.

VII. CONCLUSÕES E CONSIDERAÇÕES FINAIS

Com base na reflexão sobre a concepção de Terminologia e Diacronia dos autores citados e na análise de nosso objeto, podemos apresentar algumas considerações que elucidam as especulações sobre a dinâmica das línguas de especialidade, em uma aproximação à língua geral. Entretanto, ao longo da pesquisa surgiram algumas reflexões que consideramos pertinentes não só aos estudos de Terminologia e Terminografia, como também da Lingüística, da Língua Portuguesa e da História.

Com o intuito de contemplar nossas pretensões, ou seja, a aproximação da língua geral com a de especialidade, pareceu-nos coerente utilizar uma concepção de Terminologia de caráter descritivo, comunicativo, em oposição à tradicional, normalizadora, proposta por Wüster e a Escola de Viena. A Teoria Comunicativa da Terminologia (TCT)¹⁰ não só considera os termos como unidades da língua, como também prioriza o contexto de comunicação na descrição de repertórios, a metalinguagem utilizada e o próprio sujeito, ou seja, sem esse tipo de orientação, seria muito difícil reconstruir uma antiga técnica a partir de um relato, pois não consideraríamos as relações conceituais entre os termos, nem tampouco poderíamos observar a preservação dos núcleos sêmicos de cada processo ou ferramenta.

⁹ A manufatura transforma-se em um sistema de “funções” especializadas atribuídas a cada trabalhador individualmente. A mercadoria não é mais produto individual e passa a ser produto coletivo de um grupo de artesãos, cada um deles executando continuamente uma tarefa parcial. Verifica-se a transição do trabalho de ofício, artesanal, para o trabalho menos “qualificado” (no sentido de exigir menos treinamento). Corresponde, no nível semântico, à passagem do conceito de Obra, para o de Serviço, do trabalho avaliado em função do produto para a avaliação através do tempo.

¹⁰ CABRÉ, M. T. *La Terminología - teoría, metodología, aplicaciones* (trad. castelhana de Carles Tebé). Barcelona: Editorial Antártida/ Empúries, 1993.

Sobre determinar o grau de consolidação dos domínios e sua relação com a complexidade do repertório, tanto no antigo sistema, como no atual, observamos as peculiaridades quanto à sistematicidade desses repertórios terminológicos: seja no engenho, seja na usina, encontramos processos simplificados em detrimento de técnicas que já foram complexas ou, ao contrário, etapas complexas em um fazer artesanal e equipamentos sofisticados com menor complexidade. Assim, observamos que não só os domínios especializados consolidados apresentam essa característica; acreditamos, inversamente, que essa preocupação com a consolidação, quando suscitada, contribui para a sua preservação, o que, evidentemente, não impede que esse domínio consolidado seja imune a transformações semânticas e morfológicas.

Sobre a sistematização dos mapas conceituais, a disposição com que estes termos são alocados na estrutura respeita critérios atuais de metodologia em pesquisas terminográficas. Entretanto, o que chamamos de coreografia dos conceitos, com base na homogeneização dos mapas conceituais, permite-nos observar a mudança de níveis que essas unidades sofreram por dois motivos principais: o primeiro é o surgimento ou a obsolescência de unidades terminológicas, "alargando" ou "estreitando" pontos da estrutura; o segundo é a própria alteração na lógica do processo produtivo, qual seja, a divisão de funções, espaços, matéria-prima e produtos.

Com relação aos arcaísmos, podemos dizer que não há terminologia morta. O léxico de um idioma constitui uma testemunha imortal da cultura de uma sociedade em uma época, pois ele, especialmente o que nomeia as ciências e as técnicas, representa tendências, preconceitos e posicionamentos. Os significados sobrevivem às diversas transformações, mesmo com novos e diversos significantes, ou seja, essa sobrevivência constitui um fenômeno natural das línguas. Um exemplo disso é a própria língua portuguesa: o latim ainda vive, na forma de português, francês, espanhol.

Constatamos também que, realmente, os avanços tecnológicos motivaram o surgimento de novas tecnologias, mas o que aqui ficou claro é que, anteriormente a essas revoluções, há ainda outras como a física dos corpos, a propriedade dos materiais, os cuidados com a saúde pública (higienização), a capacitação de recursos humanos, a otimização da produção (tempo e descarte de mão-de-obra) e o controle de qualidade. Todos esses fatores – que chamamos extralingüísticos – contribuíram para a renovação lexical da terminologia da produção de açúcar e da língua portuguesa, e certamente continuarão contribuindo.

Por fim, podemos ver, de maneira claramente exemplificada, a relação mútua entre língua geral e língua de especialidade, podendo até não ser mais coerente usar a expressão língua geral nesse sentido, mas sim no sentido de congregação de todos os vocabulários que nomeiam o Conhecimento que detém uma determinada cultura. Os termos não só fazem parte do léxico de uma língua, como são as próprias unidades léxicas; o que as diferencia é o seu uso em um contexto, por falantes especializados, estando também ao alcance de qualquer um que se interessar em conhecê-las, pois é o falante que determina essa dinâmica lingüística que descrevemos, já que nem os doze pares de costelas, nem o polegar são tão humanos quanto à própria língua.

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Two Models to Improve Undergraduate Writing Perception and Capabilities in Plant and Soil Sciences

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Abstract- Integration of professional writing with peer and instructor feedback as a graded component can be a strategy for writing improvement in an applied science undergraduate curriculum. The objective of this study was to assess the benefit of professional writing in first and second-year undergraduate courses in Agronomy and Horticulture with two different models for the writing experience. In the first-year course, students communicated the results of two plant growth experiments in the format of a standard research article. In the second-year course, students wrote a group report as a review of published research or a research-based proposal to address a soil management issue. Students were surveyed to determine their major and learning style evaluated with an 18-question assessment. Students also chose their level of agreement with seven statements about the process and importance of professional scientific writing at the beginning and then at the end of the semester. Survey results showed that confidence in using and creating professional writing increased among students for both courses. Students in the first-year course showed a greater understanding of the value of peer reviewed research.

Keywords: *undergraduate, writing perception, writing capabilities, plant science, soil science.*

GJHSS-G Classification: *FOR Code: 130399*



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Two Models to Improve Undergraduate Writing Perception and Capabilities in Plant and Soil Sciences

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Abstract Integration of professional writing with peer and instructor feedback as a graded component can be a strategy for writing improvement in an applied science undergraduate curriculum. The objective of this study was to assess the benefit of professional writing in first and second-year undergraduate courses in Agronomy and Horticulture with two different models for the writing experience. In the first-year course, students communicated the results of two plant growth experiments in the format of a standard research article. In the second-year course, students wrote a group report as a review of published research or a research-based proposal to address a soil management issue. Students were surveyed to determine their major and learning style evaluated with an 18-question assessment. Students also chose their level of agreement with seven statements about the process and importance of professional scientific writing at the beginning and then at the end of the semester. Survey results showed that confidence in using and creating professional writing increased among students for both courses. Students in the first-year course showed a greater understanding of the value of peer reviewed research. The variety of professional writing choices that engaged the second-year course students provided them with a different opinion for the strictness of scientific writing than the first-year students. Students in this study varied in their approaches to learning. Overall, professional writing benefited students in their learning experience but assessing the differences in approach among students is important to account for differences in responses to the professional writing projects.

Keywords: *undergraduate, writing perception, writing capabilities, plant science, soil science.*

I. INTRODUCTION

The courses and expectations for an applied science major in agriculture such as Agronomy and Horticulture, are designed to prepare students for the professional workforce by teaching them to solve plant and soil system problems. To culminate the student's academic program, many universities require fourth-year students to complete a capstone course which integrates what they have learned throughout their academic career. The learning outcome for the capstone course at the University of Nebraska-Lincoln is for students to generate a creative or scholarly product that requires them to apply broad knowledge, appropriate technical proficiency, information collection,

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synthesis, interpretation, presentation, and reflection. A recent review of the University of Nebraska-Lincoln's Department of Agronomy and Horticulture's capstone courses showed that instructors rated scientific writing as the weakest skill among their students. Thus, curriculum improvement by expanding the students' experience with scientific writing was a priority targeted by the Department. Specifically, faculty who teach first through third year courses in the Department were encouraged to include professional writing into graded work. Furthermore, the scientific writing assignments should include review by the instructors and students and the students given enough time to improve their written projects before submission. This strategy is intended to improve student confidence and appreciation of writing to promote and advance their understanding of plant and soil science applications in the real world.

Some of the strategies to incorporate professional writing into an applied science course include emails, publications or reports, and others. Regardless of the strategy, professional writing is expected to synthesize and integrate concepts using reliable information applied to specific situations (Motavalli et al., 2003). A comparison of the relative impact of written communication courses, writing centers, and repeated practice with science writing in biology and ecology courses showed that only repeated writing had a measured impact on writing effectiveness (Jerde and Taper, 2004). Furthermore, student-written reports on experiments conducted during the course and research article reviews can improve critical thinking capabilities (Brillhart and Debes, 1981; Krest and Carle, 1999). Holyoak (1998) presented a model for writing across a biology curriculum with the writing designed to build professional expertise. Writing with feedback to promote improvement was the most impactful method to improve student exam performance in a biology course (Moore, 1993). Thus, the incorporation of professional writing across an applied plant and soil science curriculum would be expected to increase student's confidence in their ability to use and create writing and focuses learning toward the application of plant and soil science concepts.

A study on the impact of writing in a second-year undergraduate soil management course

demonstrated the contribution of writing on student learning (Blanco-Canqui et al., 2019). For example, about 55% of students indicated they learned more by writing than from readings and lectures. They also found peer review by classmates and instructor feedback helpful. This soil management course serves a variety of majors and responses among majors did not generally differ. However, students in applied plant and soil science programs may differ in learning styles in addition to major (Schmeck, 1988; Speth et al, 2006; Speth et al, 2007). Biggs (1993), observed important connections between the way students view learning or studying and how they approach writing tasks. Researchers dedicated to understanding student learning styles have developed the Approaches and Study Skills Inventory (Entwistle and Ramsden, 1983) with thousands of university students participating in large-scale quantitative studies using these questionnaires. These questionnaires show students tend to use one of three learning approaches: Surface, Strategic, or Deep. The approaches are related to how much satisfaction students experience in their learning. Students with a deep approach report higher quality learning outcomes, more enjoyment, and better grades. Students with surface approaches are less satisfied with their learning and generally have poorer grades (Ramsden, 1992). Each approach has a characteristic type of motivation, ranging from interest to getting good grades, or trying not to fail. Each has a characteristic intention, which might be to understand the material and be able to apply it or to memorize it for the test. Finally, each approach is characterized by either organized or disorganized study methods. Understanding how students with varied approaches work on their current writing projects can guide the development of future writing assignments and how those assignments are integrated into courses.

The purpose of this study was to evaluate changes in skills, confidence, and awareness of the value of peer-reviewed scientific writing in response to two writing experiences integrated into first- and second-year courses in an applied plant science curriculum. The hypotheses for this evaluation study were:

1. Students (in both classes) will gain confidence in their science writing ability.
2. The type of professional writing assignment will influence the specific improvement students report in using and creating professional writing.
3. Gains in confidence will depend on the approach or learning style of the student.

II. MATERIALS AND METHODS

a) *Writing Assignments and Participants*

This exploratory study was conducted in the classroom environment, not as a controlled experiment.

Two styles of assignments were assigned, one in each of two undergraduate courses in the Department of Agronomy & Horticulture at the University of Nebraska-Lincoln. The two writing assignments were authentic applications of professional writing linked to learning goals in each course. Students in AGRO 131 Plant Science, the introductory plant biology course, wrote a scientific research article to communicate the results of two hypothesis-driven experiments conducted in the course. Students worked in groups on the experiments and did their writing individually. Students in AGRO 269 Principles of Soil Management wrote a term paper in groups, showing competency in finding and summarizing peer-reviewed articles and their applications to soil management problems.

The timeline for completion of various stages of the writing assignment into the first year and second year courses is shown in Figure 1. In the Plant Science class, student group experiments are planned and started in the first two weeks and completed by week 4. Instruction on the scientific method, research article organization, and purpose of each component of the article is integrated into course lectures, quizzes, and exams. Students get a rubric-based grade of their draft and can submit a final draft where they can improve their writing and grade based on "peer review." This is repeated for experiment two. The two experiment write ups constitute ten percent of the course grade. Teaching assistants and the instructor schedule office hours to provide individual writing assistance to students.

In the Soil Management class students wrote a term paper in groups of two or three revolving around one of two soil management ideas: 1) a literature review of a soil management practice or 2) propose a plan to solve a soil problem. Both types of papers required students to review scientific literature including peer-reviewed articles, extension articles, class readings, and class lectures. Students were required to include at least 15 references, at least five of which needed to be peer reviewed journal articles, three tables or figures, and write an eight to ten pages long single-spaced document. Further details on the layout of each type of paper are described in Blanco-Canqui et al. (2019). To facilitate student preparation and completion of the term paper, students were assigned groups the fourth week of class, submitted an outline the sixth week of class, submitted the first draft for review three weeks before the end of semester, and submitted the paper the last week of class. Students reviewed each other's paper outlines and first draft in addition to both being reviewed by the instructor and teaching assistant.

All enrolled students in the Plant Science course in the fall semester of 2016 were invited to participate in an evaluation of the experiment write-up assignments. Those who gave their informed consent to participate in

the pre- and post-assessments included 71 first-year, five second-year and one fourth-year students. All enrolled students in the Principles of Soil Management course in the fall semester of 2017 were invited to participate in an evaluation of the group term paper assignment. Those who gave their informed consent to participate in the pre- and post-assessment included 17 second-year, 26 third-year, 13 fourth-year students and one additional student who chose the “other” answer.

b) *Grouping by Major*

Approximately half the students in the Plant Science sample also took the Soil Management course a year later, but it was not possible to match them and do a within student analysis across years. The instructors had chosen two different kinds of identification systems to meet their own evaluation needs. Students were grouped based on majors. The first-year Plant Science course included 14 different majors, the most numerous being 15 Agronomy majors plus one Soil Science and one Horticulture major, 15 Agricultural Business or Economics majors, and 27 Integrated Science majors. This provided three student groups based on major. The same three groupings were used in the second-year Soil Management course. This course included 11 different majors, the most numerous being 33 Agronomy majors plus three Soil Science and one Horticulture major, six Agricultural Business or Economics majors, and seven of the Integrated Science majors. Both groups answered evaluation questions specific to their course and their writing assignment.

c) *Grouping by approach*

An assessment of learning style, as defined by the approaches to learning and studying (ASSIST), was included to answer questions about how students with different needs, motives, learning skills or attitudes would respond to different kinds of writing assignments. The 18-item Approaches and Study Skills Inventory for Students or ASSIST was administered to understand students' attitudes toward their self-directed learning or studying activities. The ASSIST has six items about each of the three primary approaches to self-directed learning or studying. Deep, Strategic or Surface describe these three approaches.

At the beginning of the semester, students who chose to participate in the evaluation study answered the 18 items on the ASSIST. There is also a long form of the ASSIST (Tait et al., 1998), that includes two questions that show important beliefs and attitudes that affect students' experience of education: What is your definition of learning? And, what motivates you to study and learn? These two questions were included. The questions and scoring guide for the short and long forms of the ASSIST is currently available at: [http://www.research.ed.ac.uk/portal/en/persons/noel-entwistle\(79568f91-5cc9-4473-a0de-ed6c3c88d464\)/publications.html](http://www.research.ed.ac.uk/portal/en/persons/noel-entwistle(79568f91-5cc9-4473-a0de-ed6c3c88d464)/publications.html)

Individual students responded to each ASSIST question by how much they agree or disagree on a five-point Likert scale from 1=strongly disagree to 5=strongly agree. These are treated as a continuum so that 3=Unsure or undecided. Responses to the six items on the Surface, Strategic and Deep Scales were added together into scale scores. Every student had a score for the Deep, Strategic and Surface approaches. These scale scores were then converted into Standard scores.

Standard scores are commonly used for various purposes in the field of educational measurement. The Z score, one type of standard score, enabled us to compare two scores that are from different normal distributions, to see which score is more extreme. The Z scores are expressed in terms of the number of standard deviations above or below the mean of all the scores. The formula for determining a student's standard (Z) score on each of the three scales (Deep Strategic, and Surface) is: $Z = \frac{X - \bar{X}}{s}$, which is an individual's total score on a six-item scale on the ASSIST, minus the mean of all scores on that scale) divided by the standard deviation for all scores on that scale. (Allen and Yen, 1979).

The highest of the three Z scores for each student determined what Approach group (“Deep,” “Strategic” or “Surface”) they were assigned. That was operationalized by creating a new variable (column on the data file), “Approach,” and typing Deep, Strategic or Surface on the row in the data file representing each individual. This scoring method was described at length by Speth, Lee and Hain (2006). It is important to recognize that no student is treated any differently based on this categorization. Indeed, it is not until after the course ended that the instructors were told how many of each group they had in their course. This analysis allowed for end-of-course responses to be interpreted in terms of how students with similar answers to the ASSIST questions reacted to different instructional methods.

We also asked the students seven questions using a five-point Likert scale from 1=strongly disagree to 5=strongly agree. These were treated as a continuum so that 3=Unsure or undecided.

- “I have had experience writing scientific reports in class.”
- “I am confident that I can write an original science report based on an experiment I have conducted.”
- “I enjoy the process of planning and conducting a scientific experiment designed to test a hypothesis.”
- “It is not important to follow strict and standard rules in writing a scientific report to communicate a scientific discovery between scientists.”
- “I am not familiar with how to find and write a peer-reviewed scientific report.”

- "The writing and sharing of peer-reviewed and published scientific reports is less important now than it was decades ago."
- "I understand the value that peer-reviewed and published scientific reports have in society."

d) *Statistical analysis*

The data file from each class was submitted to analysis using IBM SPSS Statistics Version 23. To reveal statistically significant differences among groups with unequal treatment groups, Analyses of Variance used Compare Means: Means, selecting the Anova Table and Eta option. Comparison of pre-assessment to post-assessment results for variables was completed with Compare Means: Paired Samples T-Tests.

III. RESULTS

a) *Changes between pre- and post-assessments*

In the Plant Science course, differences between the class means on the pre- and post-assessment were statistically significant at the 0.05 level on five of the seven evaluation items (Table 1). In the Plant Science course, students reported an increase in experience (49%), confidence (33%) and enjoyment (14%) in science writing after their two-research article writing assignments (Table 1, items 1, 2, 3). The Plant Science students also reported a 38% reduction in unfamiliarity with writing and finding peer reviewed articles and a 14% increase in the value of this published writing to society (items 5,7).

In the Soil Management course, differences between class means on the pre- and post-assessments were statistically significant at the 0.05 level on four of the seven evaluation items (Table 1). The Soil Management students reported an increase in experience (15%) and confidence (11%) in writing after they had written their outlines or reviews (Table 1, items 1, 2). They did not report a significant change in their enjoyment of planning and conducting research (Table 1, item 3). Their literature review combined with creating a professional report structured to appeal to an applied audience appeared to influence their response to the statement that "strict and standard rules in writing are important to communicate a scientific discovery between scientists" (Table 1, item 4). Soil management students had a 29% reduction in their agreement with this statement after experiencing a range of professional writing formats in their soil management literature review.

b) *Learning Style or Approach Differences*

Students in our applied science majors vary in their approaches to learning. Table 2 shows the distribution of approaches by major in these two courses. A higher proportion of surface learners were enrolled in the Plant Science course than the Soil Management course. By contrast, a greater proportion

of strategic and deep learners were enrolled in the Soil Management course than the Plant Science course.

Analysis of the students as approach groups provided additional insights on the response of students to professional writing experiences. The seven questions posed in the pre and post surveys showed some impacts that were approach specific and some that impacted all students. Agreement with the statement, "I have experience in science writing in class" increased from pre to post surveys in both classes and was not approach specific (Tables 1, 2). In contrast, there were some significant differences among approach groups in their response to the writing assignment work (Fig. 2-4).

Figure 2 shows that surface learners in both courses differed in their response to the statement "I enjoy the process of planning and conducting a scientific experiment". In the Plant Science course, surface learners rated this question 36% lower than strategic and deep learners in the pre-survey but not the post survey after the students had conducted and written scientific style reports on two experiments. In the Soil Management course, the surface group rated this statement lower than strategic and deep learners in both the pre and post survey following writing the group term paper.

The students in the Plant Science course did not change in their response to "writing and sharing peer-reviewed and published scientific reports is less important now" between the pre and post surveys (Table 1). However, there was a persistent difference among approach groups. The deep learners rated this statement 34% lower than the strategic and surface learners in both the pre and post survey (Figure 3). The deep learners' disagreement with this statement implies they see the scientific process as an ongoing progression. In contrast, the writing experience for the Soil Management course appears to remove the significant difference observed in the Strategic learner group in the pre-survey compared to post-survey (Figure 3).

A similar effect was observed with the student response to the statement, "I understand the value that peer-reviewed and published scientific reports have in society" (Figure 4). In both the Plant Science and the Soil Management course, surface learners had a lower agreement with this statement.

IV. DISCUSSION

The results provided insights on our three hypotheses.

1. Students (in both classes) will gain confidence in their science writing ability.

Results demonstrate that integration of writing assignments that have a relevant context for students can advance their confidence in science writing and appreciation for the scientific process. The professional writing students conducted in both courses increased

experience and confidence in professional writing. Results are also consistent with those observed in biological science programs which have systematically tested or integrated professional writing in their curricula (Brillhart and Debes, 1981; Krest and Carle, 1999; Moore 1993, 1994).

2. The type of professional writing assignment will influence the specific improvement students report in using and creating professional writing.

Results indicate that the type of professional writing assignment influenced specific improvements in student perception and confidence. The Plant Science students reported significant gains in their agreement with the statement that they “enjoy the process of planning and conducting a scientific experiment designed to test a hypothesis” (Table 1). This was not observed with the Soil Management students, who did not actually conduct an experiment. The Soil Management class writing assignment was focused on a survey of published research targeting a soil management problem and not literature related to a single experiment. The specific gains in confidence measured here are consistent with the approach advocated in previous work (Holyoak, 1998).

The value of combining the work of conducting an experiment, then writing like a scientist to share those results was reflected in student comments from the Plant Science course.

“It was quite a bit of work and took time to write it up. The experiment was quick and easy but the write up was hard due to the fact that you had to think like a scientist.” (Student classified as primarily a Surface learner based on ASSIST scale scores.)

“The experiment write-up was challenging, as it was my first time writing a scientific paper.” (Student classified as primarily a Surface learner based on ASSIST scale scores.)

“It was helpful, it taught me how to report any kind of scientific experiment which is important. It also taught me how to search for reliable scientific information and how to include reference in my writings.” (Student classified as primarily a Strategic learner based on ASSIST scale scores.)

“The experiment was awesome. I started by getting few marks but by the end I became familiar with the procedures and I got much marks. This gave me some courageous of knowing more about scientific writings, not only to be limited on the experiment but also on other researches.” (Student classified as primarily a Deep learner based on ASSIST scale scores).

The impact of writing assignment specificity was likewise observed in the changes for the 200-level soils class students. Statement 4 “It is not important to follow strict and standard rules in writing a scientific report”

was based upon the expectation in the Plant Science course for students to experience writing in a very strict and predictable style. They were expected to find one peer reviewed research article that they could cite in their writing, but they were only expected to evaluate this article by the title and abstract. Thus, they did not change significantly in their opinion on the importance of strict writing standards.

In contrast, Soil Management students had a very different professional experience in finding and reviewing published reports for their writing assignment. The review article or proposal writing for the Soil Management students required a review of the published research with a higher expectation for comprehension. Students in the Soil Management course needed to review and cite at least five peer-reviewed journal articles to support conclusions and recommendations. Students were given a tutorial on how to find such articles and were to use the findings and tables or figures to support the discussion or why a specific management practice should be included. The students were then expected to organize their report or management plan based on the needs or interests of a specific professional audience. This would be consistent with recognizing that a range in organization approaches can be found in peer-reviewed scientific publications. This progression in the professional application of professional writing from the 100-level Plant Science class to the 200-level Soil Management course is advocated in studies which emphasized writing as a tool for advancing science understanding (Krest and Carle, 1999; Moore 1993, 1994).

Both courses incorporated a review process by peers and instructors. Therefore, these writing assignments provided students the opportunity to improve their writing by responding to the peer or instructor review (Figure 1). This added rigor also adds to the instructional cost to implement this graded work into a course.

3. Gains in confidence will depend on the approach or learning style of the student.

The impact of the writing assignment experience varied in some cases with the approach of the student. This was observed in the student agreement with “enjoying the process of conducting an experiment” where a majority of the Plant Science students in the Agronomy and Soils major were surface learners (Table 3). This group was significantly different from the Strategic and Deep approach students at the start of both courses (Figure 2). However, in the Plant Science course, where conducting experiments was part of the learning, difference in approach was not observed in the post survey scores. The surface learning approach difference persisted in the Soil Management class where students did not conduct an experiment (Figure 2). Ramsden (1992) noted that surface learners

gain less enjoyment from their learning experience. This emphasizes the importance of connecting the professional writing with learning activities students enjoy because they have personal interest and are actively engaged.

Perhaps the most gratifying finding from this study was the impact of the scientific writing work on students whose highest scale score was on the Surface items. These students were significantly more likely to say they do not enjoy doing experiments on the pre-assessment. That difference was no longer significant on the post-assessment. One student whose highest scale score was on the Strategic Approach said: "It was both fun and educational. I had no idea how to do this, but with teacher's help I did it."

The results from this writing assignment impact assessment suggest that assignments such as conducting an experiment then writing in the scientific style have their biggest benefit on the students whose highest approach score was on the Surface scale. Given the relative abundance of the surface approach among the students entering our applied science program, the investment in resources toward this activity is warranted.

It is interesting to observe the learning approach difference in the Plant Science course response to the importance of peer-reviewed and published scientific reports (Figure 3). The Deep learners in this population were less likely to agree that science writing and publication was becoming less important and this difference was not changed by the writing assignment work. At the same time, coupling experimental or literature review research with writing helps all students. One student scoring highest on the Deep Approach Scale score wrote, "Starting my draft for the experiment write-up was difficult and I made many mistakes, but my final paper was easy, I enjoyed doing it because I already knew how to do it well."

These results support the instructional approach used in the Soil Management course, of creating diverse groups of students to work collaboratively to advance professional writing confidence in a group setting. This might not be popular as it takes students farther out of their comfort zones. This is an important outcome as most writing accomplishments our students will experience as professionals will require team collaboration with diverse groups of co-workers.

V. CONCLUSIONS

This study demonstrated the benefit of incorporating professional writing in the classroom through increased confidence reported by students in using and creating professional writing. Approach differences among the students impact their response

to some of the aspects of learning through writing. A high proportion of surface learners are found among students served by our curriculum and the incorporation of writing work was particularly beneficial to students with this learning approach. Ideally, innovations will not just help students who are already successful, but make content learning accessible to students who need a little help to become the knowledgeable agronomists and horticulturalists needed to help feed a hungry world.

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Table 1: T-Test Results Comparing Pre to Post Assessment Means on the Seven Evaluation Items in Plant Science 131 and Soil Management 269: Paired Samples Statistics with Significance (2-tailed) (N=61 for Plant Science 131 and N= 30 for Soil Management 269)

Assessment Item	Plant Science 131	Mean (Standard Deviation)	Soil Management 269	Mean (Standard Deviation)
1. "I have had experience writing scientific reports in class."	Pre-	3.10 (1.160)	Pre-	3.50 (0.900)
	Post-	4.62* (0.585)	Post-	4.03* (0.890)
2. "I am confident that I can write an original science report based on an experiment I have conducted."	Pre-	3.44 (0.975)	Pre-	3.58 (0.886)
	Post-	4.59* (0.559)	Post-	4.00* (0.966)
3. "I enjoy the process of planning and conducting a scientific experiment designed to test a hypothesis."	Pre	3.75 (0.925)	Pre	3.52 (1.061)
	Post	4.28* (0.859)	Post	3.84 (0.898)
4. "It is not important to follow strict and standard rules in writing a scientific report to communicate a scientific discovery between scientists."	Pre	2.36 (1.096)	Pre	1.87 (0.885)
	Post	2.10 (1.313)	Post	2.42* (1.259)
5. "I am not familiar with how to find and write a peer-reviewed scientific report."	Pre-	3.36 (1.061)	Pre-	2.87 (1.176)
	Post-	2.05* (1.056)	Post-	2.23* (1.055)
6. "The writing and sharing of peer-reviewed and published scientific reports is less important now than it was decades ago."	Pre-	2.20 (0.813)	Pre-	2.26 (1.032)
	Post	1.95 (.0902)	Post	2.16 (1.036)
7. "I understand the value that peer-reviewed and published scientific reports have in society. "	Pre	4.03 (0.758)	Pre	4.13 (0.806)
	Post	4.60* (0.588)	Post	4.23 (0.717)

Table 2: Learning Style Approach category distribution among the major categories in Plant Science 131 and Soil Management 269.

Approach	Agronomy and Soil majors		Other majors		Integrated Science major	
	Plant Science 131	Soil Management 269	Plant Science 131	Soil Management 269	Plant Science 131	Soil Management 269
Deep	19.0%	29.7%	23.3%	38.5%	38.5%	28.6%
Strategic	23.8%	24.3%	30.0%	23.1%	42.3%	71.4%
Surface	52.4%	45.9%	43.3%	38.5%	15.4%	0.0%
Missing	4.9%	0%	3.3%	0%	3.8%	0%
Total	100%	100%	100%	100%	100%	100%

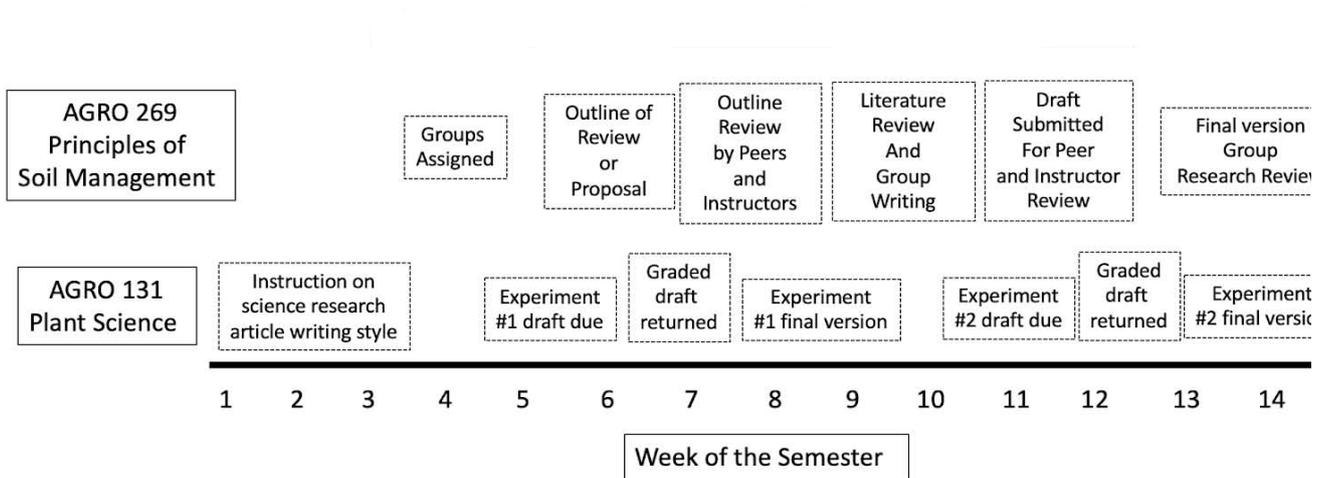


Figure 1: Writing Assignment, Review and Grading Timeline

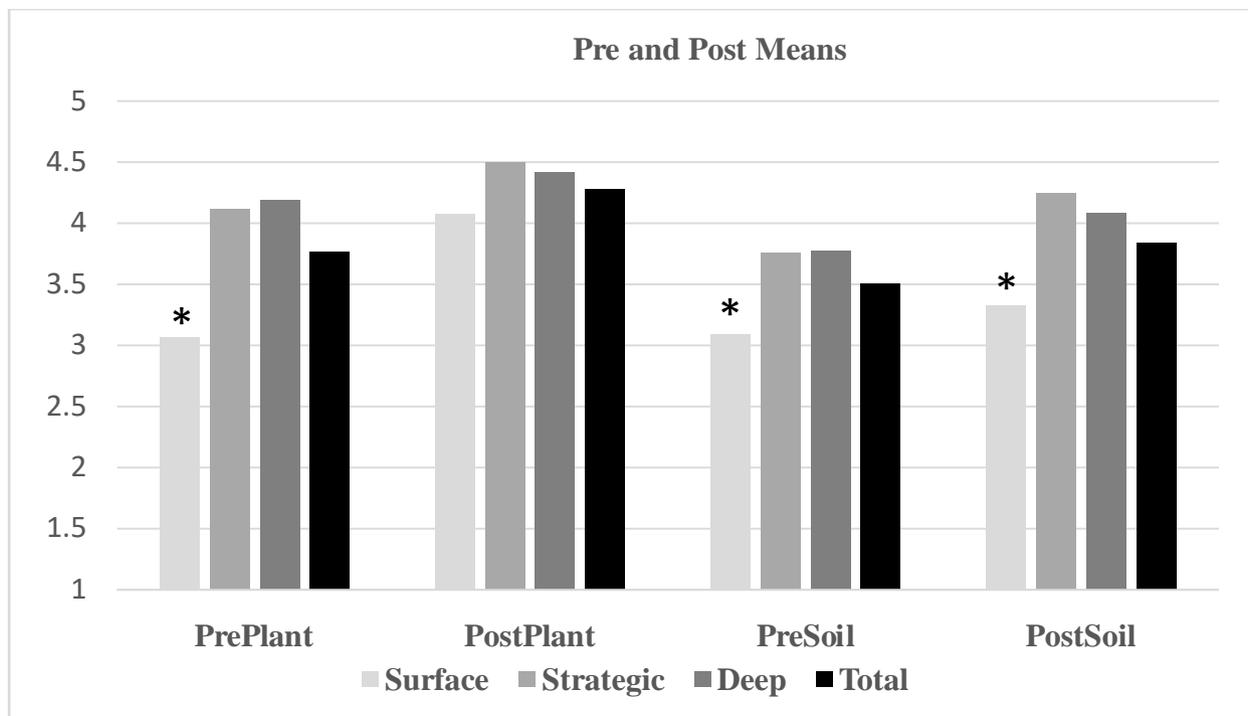


Figure 2: Mean score of student response to the statement "I enjoy the process of planning and conducting a scientific experiment designed to test a hypothesis." At the start and completion of the Plant Science 131 and Soil Management 269 courses for the three learning style grouping in each course.

Y axis score 5 strongly agree to 1 strongly disagree. The three learning style groups and means of the total number of participants in Plant Science 131 (Plant) and Soil Management 269 (Soil). The symbol * designates response that were significantly different at the 0.05 level between the learning style



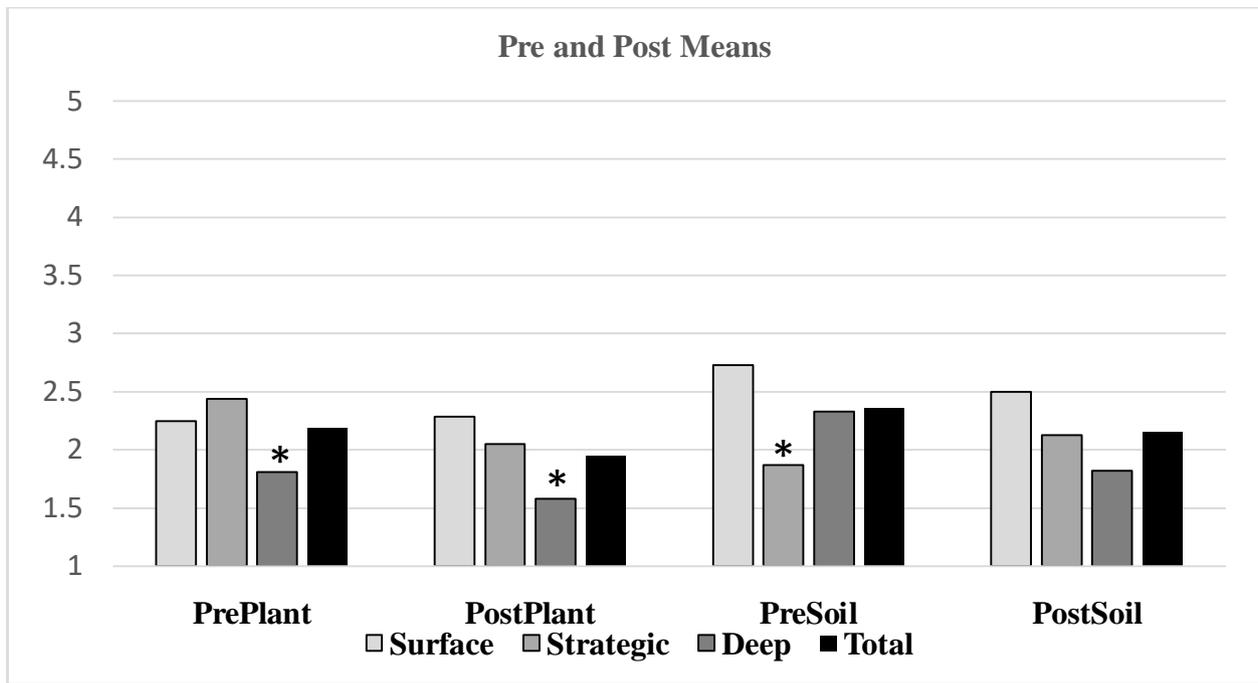


Figure 3: Mean score of student response to the statement "The writing and sharing of peer-reviewed and published scientific reports is less important now than it was decades ago." At the start and completion of the Plant Science 131 and Soil Management 269 courses for the tree learning style groups in each course.

Y axis score 5 strongly agree to 1 strongly disagree. The three, learning style groups and means of the total number of participants in Plant Science 131 (Plant) and Soil Management 269 (Soil). The symbol * designates response that were significantly different at the 0.05 level between the learning style

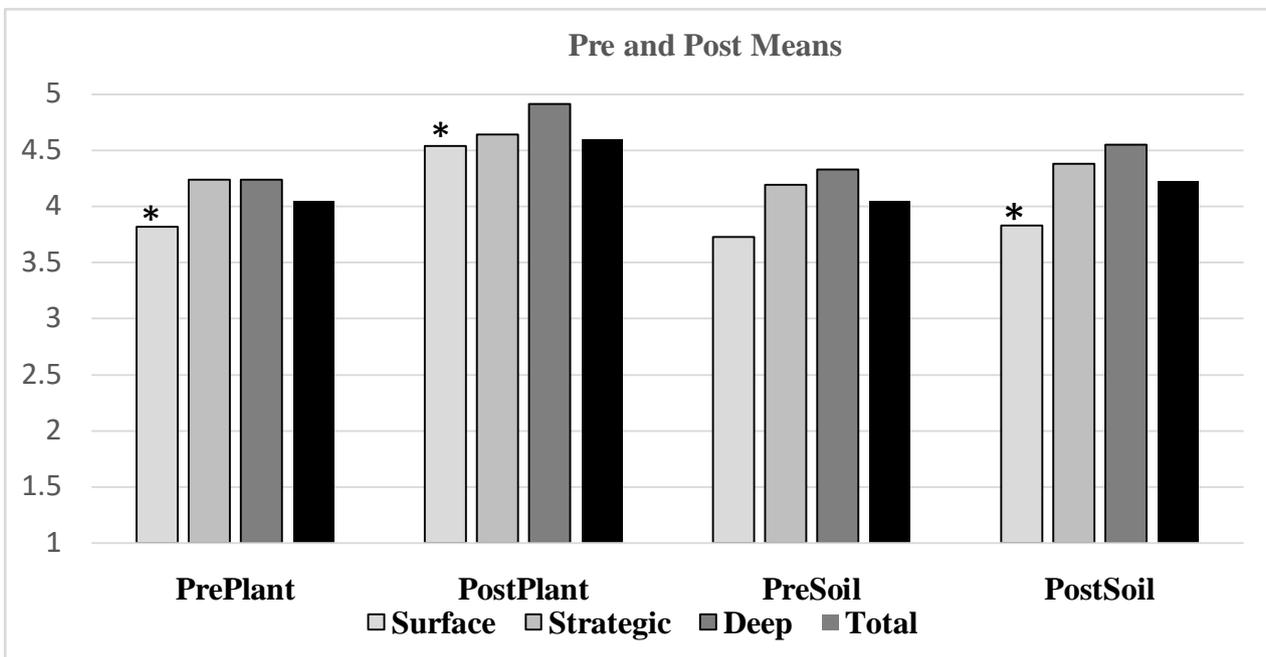


Figure 4: Mean score of student response to the statement "I understand the value that peer-reviewed and published scientific reports have in society." At the start and completion of the Plant Science 131 and Soil Management 269 courses for the tree learning style groups in each course.

X axis score 5 strongly agree to 1 strongly disagree. The three, learning style groups and means of the total number of participants in Plant Science 131 (Plant) and Soil Management 269 (Soil). The symbol * designates response that were significantly different at the 0.05 level between the learning style.

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The use of Filmic Text in English Language Classes: Beyond Emotions a Study Carried out in a Brazilian Public School

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Abstract- This paper is an excerpt from a Master's thesis entitled "The use of the filmic text during English Language classes: an interface with secondary-graders' emotions" and focus on presenting the contributions resulting from the use of a filmic text in English classes, and how the students' emotions can interfere in the learning process. The research was conducted in a second grade of a public high school in city of Araguaína - northern Brazil. It was an interventionist research, with qualitative basis and interpretative nature. Considering the use of filmic text in English classes, we will present the significant advances of the students in their learning with regard to the practices aimed at listening comprehension, pronunciation, reading and writing in English. Hence, these activities helped students to overcome shyness, shame, nervousness and fear besides contributing for elicit positive emotions such as joy and interest during the classes.

Keywords: textual genre; filmic text; emotions.

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THE USE OF FILMIC TEXT IN ENGLISH LANGUAGE CLASSES BEYOND EMOTIONS A STUDY CARRIED OUT IN A BRAZILIAN PUBLIC SCHOOL

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The use of Filmic Text in English Language Classes: Beyond Emotions a Study Carried out in a Brazilian Public School

Dr. Selma Maria Abdalla Dias Barbosa ^α & Mr. Regina Sousa Maia ^σ

Abstract- This paper is an excerpt from a Master's thesis entitled "The use of the filmic text during English Language classes: an interface with secondary-graders' emotions" and focus on presenting the contributions resulting from the use of a filmic text in English classes, and how the students' emotions can interfere in the learning process. The research was conducted in a second grade of a public high school in city of Araguaína - northern Brazil. It was an interventionist research, with qualitative basis and interpretative nature. Considering the use of filmic text in English classes, we will present the significant advances of the students in their learning with regard to the practices aimed at listening comprehension, pronunciation, reading and writing in English. Hence, these activities helped students to overcome shyness, shame, nervousness and fear besides contributing for elicit positive emotions such as joy and interest during the classes.

Keywords: *textual genre; filmic text; emotions.*

I. INTRODUCTION

I am black and I teach English as a Foreign Language. I started learning English when I was 10 years old, encouraged by my godmother, who affirmed in 1985: "Knowing English will be important for you in the future". And the day she made such a proposal, she also indirectly revealed to me, that in private English courses there were only white children with greater purchasing power.

Thus, different from other black children, I attended an English course in a private school. The color was not only different in the tone of the skin, but was also in the shine of the shoe, in the print of the clothes and in the landscapes that adorned the memories of the holidays. Already in those early days, I was a resistant.

My godmother's allowance last for four years. After that, I continued to study on my own and experienced the methodologies of other English schools. When at the entrance examination, I had no doubts about the course to be chosen: Languages. I have been a teacher for 21 years, and during this period

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I have worked in public and private institutions, with various age groups, from early childhood to higher education.

Therefore, at the beginning of the Masters course, I was involved in developing a project aimed at teaching and learning the English language. And so, a high school class (2nd grade) of a public school located in Araguaína/TO where I was teaching for about two months was chosen. Being the only second grade high school in the morning shift and the time factor were the decisive reasons to carry out this research with these students. Most of them teenagers.

Adolescents and "my co-workers" every week, on Fridays, during the following class time: 10:30 a.m. to 11:20 a.m. On this day, time and place, they were there, as in any other classroom. But their attitudes and reactions cannot be equated with anybody else, because they had looks, laughter, astonishment that arouse at any moment, particularizing them. Printing them in a context: Why this look? Why so many laughs? These students who were already part of my routine, metaphorically joined a new class. To me, it was an unprecedented experience, among photos, records, field diaries and application of questionnaires. Thus, the roles of all the actors were interwoven, because students and teacher were joined together in a learning process characterized by different experiences; they were (re)positioned in the same place, but thinking and acting differently than we had done before.

And in this context, the teacher and researcher was focused on the use of a film in the classroom, discovering it as a textual genre, from a socio-cultural perspective and establishing an inter-relationship with the emotions of the students that flowed during the learning process. In this way, we started from the following question-problem: "What are the contributions of the filmic text as a mediating tool for learning the English language in a second grade high school class?"; inter-relating it to the sub-question: "How do emotions influence the learning process of the English language in a second grade high school class?"

Hence, this study is an excerpt of the Master's thesis entitled "The use of filmic text during English language classes: an interface with the emotions of second-graders in high school" that aimed to investigate the contributions of the filmic text as a

mediating tool for English learning as well as the influences of students' emotions in this process. All the classes were developed in a second grade of a high school, by means of a didactic sequence in which it was developed activities of reading, listening, speaking and writing.

The research carried out here is also part of the investigative context of Applied Linguistics, an area of study focused on the use of language in society and the resulting interactions. Although Applied Linguistics is often confused with the mere practice of methodologies for language teaching, it is not in this way that the AL presents its approaches, but on the contrary, the proposal is to apply the language in a real situation.

Thus, Applied Linguistics goes beyond a program content, but makes it possible to interconnect and problematize daily issues. It is understood that "to construct knowledge that is responsive to social life, it is necessary to understand AL, not as a discipline, but as areas of feminist studies, on blacks, Afro-Asian studies, etc." (MOITA LOPES, 2006, p. 97). Applied Linguistics is essentially social, and some emerging subjects in contemporary society are part of its research field; Consequently, voices that (re) established new struggles, related to racial issues, gender or social class echo. And this demand requires new ways of thinking, acting and producing knowledge.

This paper is an excerpt from a Master's thesis entitled "The use of the filmic text during English Language classes: an interface with secondary-graders' emotions" and it was guided by the Professor adviser: Dr. Selma Maria Abdalla Dias Barbosa. It aims to show the contribution of a filmic text to English learning, as well as how emotions can interfere in this process and it is composed of four sections besides introduction and conclusion: Literature Review; Methodology and Discussion of data and Results.

II. LITERATURE REVIEW

a) *Notions about textual genres*

The learning process always involves in some way, attitudes of writing, speech, listening and reading and, therefore, the text is evoked. A fertile ground, where many theorists already cohabit and see it in its amplitude, evidencing the so-called genders. Such denomination is well known in the school environment - mainly by professionals in the area of Language. This is a current topic, but the idea of gender has existed since the early middle ages and has had an increasing evolution, because according to the notes of Marcuschi (2008),

[...] a simple historical observation of the emergence of genders reveals that, in a first phase, people of essentially oral culture developed a limited set of genders. After the invention of alphabetic writing around the 7th century BC, the genera multiply, and the typical ones of writing appear. In a third phase, from the fifteenth century onwards,

the genera expand with the flourishing of the printed culture to, in the intermediate phase of industrialization begun in the eighteenth century, begin a great expansion. (Marcuschi, 2008, p. 20 – Our translation)

In our educational context, we have the Curriculum Parameters Secondary Education¹ (PCN) as one of the references that present the gender linked to language practices, "the study of the discursive genres and the ways in which they articulate provides a broad view of the possibilities of use of language, including the literary text. (2000, p. 08)" While in the PCN, the word gender is used 13 times, in the document of the Brazil's National Common Curricular Base² (BNCC), the same term is considered 50 times, always referring to situations language use, emphasized in one of the learning indicated abilities: "To employ, in social interactions, the variety and language style appropriate to the communicative situation, to the interlocutor(s) and to the gender of the discourse, respecting the uses of the languages(s) by the interlocutor(s) and combating situations of linguistic prejudice" (BNCC, 2018, p. 486).

Regarding the definition, function and importance of genders in school, we have some theorists who discuss these aspects, such as Bazerman (2011) and Marcuschi (2008); which corroborate what historical information reveals to us about the relationship of genders with language and also with social, historical and cultural facts, factors that come from a daily life and that are naturally embedded in the learning process. In this perspective, Marcuschi states that

When we master a textual genre, we do not master a linguistic form but a way of achieving linguistically specific objectives in particular social situations [...] Thus, gender analysis encompasses an analysis of the text and discourse and a description of the language and vision of society, and still attempts to answer questions of a socio-cultural nature in the use of language in general. The treatment of genders concerns the treatment of the language in its everyday life in the most diverse forms. (Marcuschi, 2008, p. 149 and 154 – Our translation)

The aforementioned author does not exactly make an adoption of isolated concepts. In terms of

¹ The Curricular Guidelines for Secondary Education. The PCNs - National Curricular Parameters are guidelines elaborated by a group of education specialists linked to the Ministry of Education (MEC) and aims to guide educators through the standardization of some fundamental aspects concerning each subject. The PCNs serve as guides for teachers, coordinators and directors, who can adapt them to local peculiarities.

² The BNCC is established in the following official documents: 1988 Constitution, the Guidelines and Bases Law, the National Curricular Guidelines and the National Education Plan. The Common National Curriculum Base (BNCC) is the document that defines the essential knowledge that all Basic Education students have the right to learn. Provided by law, it must be observed in the elaboration and implementation of public and private schools' curricula. By clearly determining what students have the right to learn, BNCC can help to improve the quality of teaching throughout Brazil. As a common reference for all education systems, BNCC contributes to promote educational equity.

conceptualization, Marcuschi (2008) presents to us an interrelation of these definitions, emphasizing that they happen in social practices. The first concerns the textual type, mentioned as the most limited categorization regarding the linguistic form and character, being classified in "narration, argumentation, exposition, description and injunction". The textual genre is defined as texts existing in everyday life, which need "communicative situations" to be expressed both orally and in writing. And finally, the discursive domain, which is in the scope of human activities, that is, correspond to all initiatives of use of language.

In accordance with this idea, Bazerman (2011) ponders on the social question surrounding the text genre, establishing a kind of structure in which it is possible to visualize a relationship between the following components: texts in the most diverse formats that are used in a given situation, and enable their authors to achieve success, they will be generators of social facts, which consist of actions performed through language, or "speech acts".

To integrate this reflection, we bring the contributions of Schneuwly (2004, p. 20), because he calls our attention when he defines text genres quite categorically and easily states: "text gender is an instrument". And this concept, although brief, brings with it a comprehensiveness, which begins in the development of individual capacities, built from activities carried out socially through these instruments, who are also designated as mediators in these social situations.

The reflection initiated previously emphasizes the centrality of the social sphere, where textual gender is present daily and acquires meaning and form; through its use. Now, if we need to communicate, we will inevitably seek ways to achieve our goals. Faced with the need to enroll in a higher education course, an academic will seek all the necessary information in order to fulfill indispensable forms, but such text only acquire meaning in this specific social situation of interaction.

According to Schneuwly (2004), gender is no longer restricted to the fields of rhetoric or literature, but transcends to the level of discourse, which is made explicit at the moment when the individual uses speech or writing to perform an activity under any circumstances; emphasizing that there are specific patterns for each situation; because when enrolling, that newcomer should use all gender standardized by the institution with which he intends to join.

The emphasis is given to what people do and how they do when using speech or writing; we observe the attitudes of the interlocutors in the most diverse communication activities in daily life, as well as the results of these attempts. Which texts are chosen and why? What was the intention of the sender? Was he/she understood? Thus, gender is approached from a social perspective, i. e., it exists only on the basis of a use of speech or writing, and the individuals who are

responsible for giving it "life" also needs to know the modality, what Bazerman (2011) calls typification better suited to each situation.

In this context we find the filmic text which can be used during English language classes; because "in addition to being an object of teaching, gender is conceived as a means or linguistic-discursive space to contextualize the study of language (action)" (Silva, 2015, p. 1029 – Our translation). Thus bringing a dynamic and social representation of the English Language, in diverse contexts, since this instrument exposes several aspects of the said discipline (lexicon, grammar and culture), which can be approached implicitly or explicitly in moments of reading and scenes or scripts comprehension.

b) *The filmic text during English Language Classes*

The learning process of a foreign language enable students to expand their possibilities of reading, acquiring information, mastering new technologies and interaction; it will inevitably involve the use of diverse textual genres, allowing students to broaden their perception of society by means of the texts they deal with on a day-to-day, and they also can identify information or messages implicit in images or in a sentence with double meaning. Awakening them to identify cultural or political influences to which they may be subjected.

In addition, the textual genres may be observation exercise and acquiring of the language beyond grammar, as far as texts common to the world of the students can be used in the classes, with clear objectives and defined function, bringing multiple meanings or resignifications to these. Also inserting the student in an active learning, that is, now he/she is the protagonist and is being encouraged to reflect and develop activities close to daily life, since

Genders, as well as other social distinctions that are incorporated into our actions, perceptions or vocabulary of reflection and planning, help shape the emerging action within specific situations. As in recent centuries the social world has become increasingly differentiated, many activities are carried out in different types of social situations, making discursive activities increasingly differentiated. [...] Today there are many more places of socially influential discourse and every discursive location is potentially recognizable as being quite influential. (Bazerman, 2011, p. 154)

Knowing, therefore, this amplitude inherent to the discursive activities, we identify among so many options of textual genres, the filmic text, which is so recognized by Marcuschi (2008) to attest that television is a textual support, the cinema and the theater are environments, however, the play and the film itself are genres. We still found Harmer (2001, p. 282), which presents us some advantages regarding the use of videos in the classroom, leading us to relate them to the use of filmic texts genre. Among the benefits cited by

this author, we highlight: see the language in use, intercultural awareness, the power of creation and motivation.

It is, therefore, a pedagogical practice that approaches the use of a language in everyday life, enabling students to have contact with other pronunciations besides that used by the teacher, be able to observe particularities related to intonation, differences between subtitles and the actors' speeches, reading diverse social themes, susceptible to reflections and construction of arguments through debates or rereading. This approach will not be restricted only to lexical or syntactical aspects.

It is noteworthy that although films refer automatically to the context of cinema; in a classroom, one can even provide a similar structure, but still, the visualization of the film will be transposed by interventions elaborated by the teacher and will be linked to various activities, focusing on certain parts or situations of the plot, emphasizing certain expressions or vocabulary, directing the attention of students to certain aspects, when questioning or proposing some observations.

And this possible attitude is worrying, as the use of the film genre is based on an approach focused on the power executed by teachers in classrooms, which perhaps has not yet "realized" that the foundations of critical pedagogy are being built and turn to an individual who learns not only from a teacher, but with this and with "others", because

[...] We come to a world dominated by uncertainty, questioning the established truths, suspicious of those who propose solutions. In language teaching, the era of the post-method (KURAMADIVELU, 1994, 2001, 2003, 2006) was inaugurated, based on the ideas of postmodernism, constructivism and critical pedagogy. It defends the idea of a pedagogical intuition, based on the teacher's vision of the reality in which he acts. (Leffa and Irala, 2014, p. 29 - Our translation)

Other problems announced by Harmer (2001) concern the following factors: "Nothingness syndrome", when the videos presented do not allow unique learning experiences; poor quality of the images, which may compromise the interest of the students; poor audio and viewing conditions, including taking care of the screen size for removal and light from the environment; constant pauses, as they can cause irritation and be discouraging; long duration - since it is advisable to use if short videos; and lack of skill on the part of the teacher to handle the equipment.

Paying attention to these elements represents something significant, in the case of any classes, and more specifically those of foreign language, because the achievement of the objectives proposed for this discipline depends very much on the quality of images and audio, in view of the need for a "faithful" representation of the target language in use. Moreover,

these criteria are inter-related to the interpretation quality will do, since

[...] the viewer receives the images of a film text, but this reception is not passive: the viewer reads and builds the senses based on various contexts and reacts to them through psychic functions of intellect, cognition, memory and desire, or through the transfer of individual and collective attitudes. The viewer interprets what he sees, individually and collectively. (Thiel; Thiel, 2009, p. 15 - Our translation)

Given the fact that the spectator/student is not passive when watching a film, although it may seem so, it also puts the teacher in an active position, as it directs him/her to reflect and develop the strategy (s) which are relevant to the objectives set for a particular classroom and therefore refuse to display films as mere tools for filling in gaps in school hours. To this end, it is necessary to create a learning context that subsidizes students in the acquisition of the target language, and *a priori* encompass some principles.

In focusing on the need to adopt some principles, we refer to Ellis (2008), when he proposes, among a list of ten, the two most coherent with the reflection developed in this study; one of these concerns the importance of learning different types of everyday expressions, enabling learners to understand how, when and why to use certain sentences, learning also to create them according to the situations. For the other principle, the author states that one should focus on meaning, advocating that when learning a language in a natural way, we do not care about forms, but focus on how to communicate.

We dare to say then, that under this perspective, the language resembles a new toy in the hands of a child, enchanted by the discovery, eager to "take it in the hand", feel it, gives it a function, in short, understand it and make yourself understand. In such a way, Wray (2000) *apud* Gilmore (2007) also points to the importance of using fixed phrases (idioms, combinations of words and structuring of phrases) in language learning; emphasizing the difficulty that non-natives have to distinguish between what is natural, what is strictly grammatical, and what is not idiomatic. Gilmore (2007) claims to be the use of authentic materials, through a careful selection, the best solution to ensure the exercise of language in its most natural form.

It is understood that the choice of a filmic text is coherent to the principles and requirements inherent in authentic materials, since this genre presents faithfully the language in use. However, it is imperative to have criteria and a well-defined step by step, although we know that in a classroom, unexpected situations can happen, it is not a matter of acting in urgency, but knowing what is being done and the reasons of a particular class, concerning the selected content and material. But, as Tomlison (2010) states, one must focus

on students, who must know precisely what results will be requested of them in the learning process.

Because that makes it possible for them to easily realize that the proposed activities will focus on a more comprehensive learning, contemplating not only aspects related to the structure of the language, but also to the exploration of social themes. However, there are no strict or only defined paths, and it is up to the teacher to consider the best approach to the use of a filmic text during foreign language classes, going beyond the mere contemplation of images or the decoding of this textual genre, but providing students to become involved with the language being studied, in a process that allows them to reflect, build and reconstruct conceptions about the world around them, and at the same time develop practices aimed at the target language, building or deconstructing ideas and projecting emotions. With regard to these, we can imply how much they can influence the learning of the English language.

c) *Emotions in the context of learning*

The pedagogical work of a teacher is intrinsically related to "choices" and he/she does, daily, the exercise of dealing with several students' reactions in the face of proposed activities during classes. In front of a classroom, the teacher's vision is privileged, because with an "attentive eye", he/she can perceive in his/her pupils, multiple expressions: joy, discontent, anger, shyness, tiredness, indifference, pride, enchantment, fear, surprise, disappointment, lovingness, contempt and so many others. Although this list will not be unambiguous for all classrooms, since in each of these locus, there will be specific teachers and students.

The emotions to which we refer can increase the curiosity of the teacher or at least bother makes him/her enquires about the reasons why these phenomenon happens and how to deal with them. But, what does emotion mean? Feeling and emotion are synonymous? Is it possible to classify them? What is their function? Although there seem to be obvious questions to what any layman will have a quick response, it is necessary to seek understanding beyond just "observation, feeling or reaction". Barcelos (2015, p. 8), for example, states that "there are as many definitions as the many emotions we feel and their combinations". Nevertheless, when we consider emotions as part of a mechanism for facilitating learning, it becomes relevant to conceive it, in order to better understand its use in the educational field.

In regard to a classification of emotions, Damasio (2004), states three categorizations: background emotions, primary emotions and secondary/social emotions. At first, we think that emotions will always be in evidence, but the concept of background emotions undoes this idea, since these are

not perceptible, nor for those who observes nor for those who feels them, due to the simple fact that they are linked to what happens inside our organism, from diseases or fatigue. And as a result of such emotions, our well-being or discomfort is established. Such emotions are identified from "subtle details such as body posture, speed and contour of movements, minimal changes in the amount and speed of eye movements and the degree of contraction of facial muscles." (DAMASIO, 2000, p. 105 – Our translation).

In this theoretical framework, the primary emotions are evidenced by the quality of being natural, instinctive, pre-programmed. Damasio (2004, p. 38) identifies them as: "fear, anger, disgust, surprise, sadness and happiness". These are the emotions responsible for triggering most of the neurobiological knowledge about this subject. They are universal, and therefore inherent to all human beings, identifying us by reactions that guarantee our survival, because "by itself, emotional reaction can achieve some useful goals: for example, hiding quickly from a predator or demonstrating anger toward a competitor." (DAMASIO, 1994, p. 149 – Our translation)

In addition to this the secondary or social emotions which are named this way because they are learned through social interaction, including the "sympathy, compassion, embarrassment, shame, guilt, pride, jealousy, envy, gratitude, admiration and amazement, indignation and contempt." (Damasio, 2004, p. 39 – Our translation). In fact, these emotions, unlike the primary ones, are not innate, but acquired throughout life, based on social conventions, since they are related to moral and cultural issues.

Emotions are still discussed as part of the cognitive process and the constitution of the human being in society. Fonseca (2016, p. 2) states that "emotions are part of the evolution of the human species and, obviously, of the development of children and adolescents, constituting a fundamental part of human learning". To illustrate this assertion, we cite disgust, because the repulsion caused by the appearance of something possibly toxic when inhaled or ingested can contribute to our survival and consequently to our evolutionary process.

Emotions also find support in the work of Vygostky (2001), because in his studies related to language, he shows sensitivity to the presence of emotions; showing us that attention to emotions is not unheard of, because it already gained prominence in the studies of the said author, which states that these exist and treats them in an intrinsic way to language and cognition.

Thought itself is not born of another thought, but of the field of our consciousness that motivates it, which covers our inclinations and needs, our interests and motivations, our affections and emotions. (...) Behind thought there is an affective and volitional tendency. Only it can give the answer

to the last reason in the analysis of thought. (VYGOTSKY, 2001, p.16 and 479)

In the beginning, there were human beings, and language was with them, and language was them. This evidence goes back 3.5 million years, when reference is made to bipedal primates. And from this observation, Maturana (2002) is not satisfied with the theory of an evolution centered on physical aspects only, as the manipulation of tools, but sees that the use of hands, for example, developed a priori in the relations of coexistence. Arguing, therefore, "that the history of the human brain is primarily related to language". It is used to coordinate all other actions, including "feeling", because "the peculiar of the human is not in manipulation, but in language and its interweaving with emotion." (MATURANA, 2002, p. 19 – Our translation).

Emotions are essentially human, and so, it is not only a biological phenomenon, but inevitably cultural, because in social relations, reason is not predominant, since in parallel there are emotions, which can be innate, peculiar to humans or other animals, such as fear or anger; and others, which are learned in society, such as shame or contempt. Thus, it is necessary to verify the interdependence between emotions and the various sociocultural contexts where they emerge.

i. *Sociocultural perspective*

Although emotions are placed in the most hidden places when researches aimed at language learning are developed under a rationalistic perspective, Swain (2013) provokes us by defending the importance of addressing them as "epicenter" of the teaching and learning process to the point that language learning itself may affect emotions; this phenomenon can happen when activities and/or strategies chosen by the teacher for classroom application, can trigger emotions or feelings such as anxiety, anguish, fear, shyness and many others.

This author is based on Vygotsky (1978; 1987), which states that the "physiology of many emotions is biological, but what physiology means, how it is interpreted, is cultural" (SWAIN, 2013, p. 204). It is about visualizing emotions from a collaborative perspective, in which learning takes place in the interaction of the interlocutors, during the resolution of a problem situation, for example. Let's look at the context in which the teacher requests a theatrical presentation for a Christmas Cantata. Activities such as this require the definition of strategies, acquisition of materials, trials, theoretical studies, there will inevitably be a lot of interaction between the members of the work teams. Since in these interactions, students will use their previous knowledge, internalize so many others and must deal with the emotions that emerge. It's what the author calls learning languages in progress.

Corroborating this idea, Johnson (2009) emphasizes that the cognitive is only formed through the individual's engagement in social activities, that is, it is in an interactive and mediatized process; and it refers to the materials culturally constructed: signs, symbols (semiotic artifacts) which mediate social relations and create a high level of (cognitive) thinking.

Corroborating with Vygotsky, the author cited above exposes the importance of the use of language, emphasizing the fact that it resides in the use that a group makes of it. So much so, that we see some words or expressions disappear from our daily life, since they are not used by any social group. Thus, language functions as a psychological and cultural tool, which allows individuals to interact and exchange experiences, building knowledge in a cultural context.

Thus, Johnson (2009) understands that this process is dynamic, because those involved are in constant change, and the effort made by them to mobilize knowledge characterizes learning more than the acquisition of skills or knowledge. The individual mobilizes the cultural framework and consequently learning happens, i.e., everything depends on his previous experiences. In other words, from a socio-cultural perspective, the teacher empowers students to have contact with real situations. And

when teaching creates learning opportunities in which individuals can participate in activities that enable them with direct experiences in the use of new psychological tools, such tools have the potential to function as powerful tools for human learning. (JOHNSON, 2009, p. 04, our translation).

And this contact with real situations is coherent with the demands of the current society, because when rethinking a pedagogical practice is based not only on cognitive principles, but also considers the emotions intrinsic to the teaching and learning process, learners will develop essential skills for a good social life in the most varied environments, encompassing attitudes such as: acceptance of differences, team sense, conflict resolution and recognition of people's values.

According to Johnson (2009), this theory goes against positivism, which considered that learning was something isolated in the mind. However, positivism was insufficient, treating knowledge as something merely palpable and capable of being proven only through scientific experiments that would sensitively prove its existence; seeing the world through the prism of binarity, where everything and everyone is ranked as: "right" option, or "wrong" option. Hence assuming a generalization, a dangerous effect for the "classroom" place, where socio-cultural diversity resides.

Therefore, it is possible to state that the internalization of knowledge resulting from the teaching and learning process also depends on a cultural context, where students manifest their feelings and are seen not only from the cognitive point of view, but as

experienced individuals in the field of emotions. Then, when organizing a didactic proposal for a specific class, the profile of the students should be considered, creating opportunities for them to interact to each other and get autonomy.

Other theorists who guide the studies related to this perspective are Johnson and Golombek (2011) who present the importance of socio-cultural relations for the re(construction) of an individual; debate about the limits of the proximal area of Vygotsky; emphasizing an approach towards English language teaching that extrapolates grammatical concepts, lexicon and proficiency skills, but that finds diverse and critical paths

Human cognition is mediated by virtue of being situated in a cultural environment and it is from this cultural environment that we acquire the representational systems, most notably language that ultimately become the medium, the mediator and the tools of thought. Consequently, cognitive development is understood as an interactive process, mediated by culture, context, language and social interaction. (JOHNSON and GOLOMBEK, 2011, p. 01.)

And these paths outlined in the classroom will be developed by students-teachers or student-students, always inaugurating new environments to integrate a same classroom, where they will have the opportunity to exchange knowledge. In view of this, it is considered that the classroom becomes a multiple cultural environment, since the teacher as mediator stimulates the students, contexts are created where the cognitive will not be limited to the boundaries of a foreseen content, but will also have the language as a mediating instrument.

According to Johnson (2009), what gives meaning to relations is the social use of language, constituting the basis of collective work. Consequently, the cognitive development of students is characterized as the ability to acquire and manipulate tools and cultural knowledge. When the particularities of signs are mastered, a wider range of action in society is acquired, both from the expressive point of view and from the comprehension and textual production.

We identify here a subject that extrapolates the internalization of knowledge only, but is aware of its possibilities of action, is what Johnson (2009) calls human agency. In the classroom, one can recognize such a phenomenon when learning is acquired from and with the social environment, perceiving the changes that have occurred in the students themselves and in the environment around them. And more than learning collectively, the socio-cultural perspective also contains what students define as objectives and expectations about what to do with acquired knowledge.

It is often thought that to acquire knowledge, a set of pre-established artifacts is enough: a teacher, a blackboard, books, portfolios and students eager to absorb all the contents. However, the teacher discovers that using prescriptive activities to be fulfilled precisely

by the students is no longer enough, because it is necessary to build challenges that lead the learners to deal with different situations, facing challenges that require them both cognitive and emotional skills.

And it is in this classroom dynamic, where the scenarios change throughout the learning process. We also figure out that the actors (teacher and students) cohabit several classrooms: real and virtual, and are invited to work collaboratively, exchange experiences, observe, read between the lines, to act and intervene in the environment in which they live together.

III. METHODOLOGY

This study was carried out in 2017, with a 2nd grade public high school in the city of Araguaína, north of Tocantins. It aims to show the contribution of a filmic text to English learning, as well as how emotions can interfere in this process. The study participants comprised 29 (twenty-nine) students, of whom 17 (seventeen) were female and 12 (twelve) were male, aged between 16 (sixteen) and 19 (nineteen) years. The participating teacher, who taught the discipline of English Language, completed the course Languages in 1996 at the Foundation University of Tocantins.

In the discussion and data analysis, students' names are fictitious, to protect their identity. All students enrolled in the class or their legal representative agreed to participate in the research and authorized the publication of their data, in accordance with the requirements of the Ethics Committee of the Federal University of Tocantins, where the research project was submitted and approved, according to opinion n. 3.024.534.

For data generation, we adopted a methodology characterized as interventionist, with qualitative and interpretative nature. Interventionist research seeks to develop devices with a view to analyzing the daily life of a group, focusing both on actions performed individually and collectively. An approach of this nature will also be based on a qualitative perspective seeking to explain the social phenomena focused in several ways, whether through the analysis of experiences of individuals or groups; "examining interactions and communications that are developing or investigating documents" (Flick, 2009, p.08 – Our translation).

It is also noteworthy that the interpretative nature is characterized by the action of the researcher dedicated to the interpretation of actions developed by a group of individuals inserted in a social context. There will be a predominance of the understanding of the data, which will be interpreted and analyzed based on a theoretical and methodological basis. Moreover, "interpretative research is not interested in discovering universal laws through statistical generalizations, but rather in studying in many details a specific situation to



compare it to other situations" (Bortoni-Ricardo, 2008, p. 42 – Our translation).

The path taken to reach the objectives proposed in this research involved the use of the following instruments for data collection: 02 semi-structured questionnaires, applied at a time before and after the performance of a didactic sequence; field diary containing the reports prepared by the teacher-researcher about the experience of the students-participants, encompassing the episodes concerning the organization and development of all activities; audio and video recordings.

Thus, the data collection instruments used enabled the teacher-researcher to systematize the process of execution of the actions developed in the classroom, as well as assisting her in the analysis filmic text contributions to students' learning.

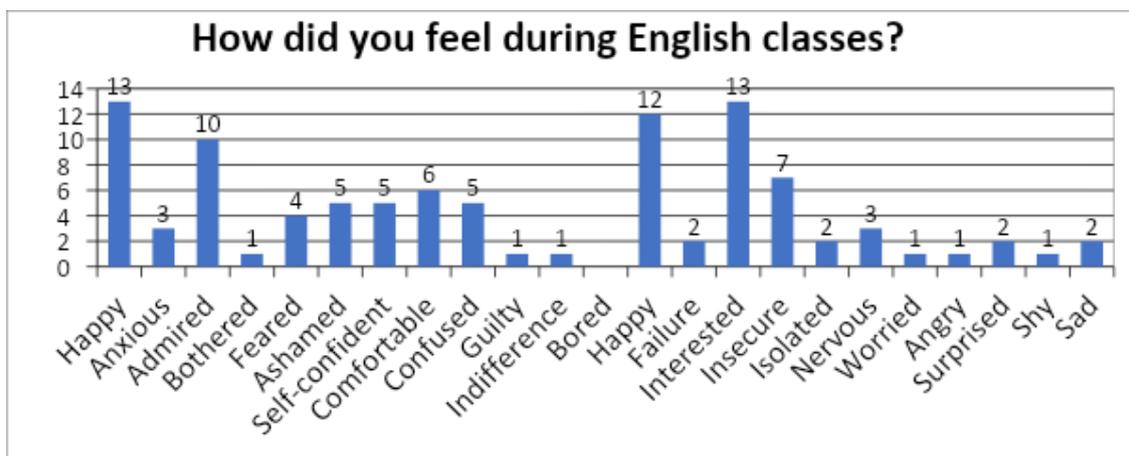
research was carried out for two months, but she had not used a filmic yet or even made observations regarding the students' emotions. Therefore, before starting the set of activities foreseen, she applied a semi-structured questionnaire, seeking to identify the students' emotions.

Of the 29 (twenty-nine) students enrolled, 27 responded the following question: "How did you feel during English classes? Justify your answer". The participants had a list of emotions, which they could choose as many as they wanted. For this question, a chart was created to indicate the number of students who expressed each emotion, as shown below:

IV. DISCUSSION OF DATA AND RESULTS

a) Learners' emotions before the filmic text

The teacher-researcher had been taught English as a foreign language in the class where this



Source: Questionnaire 01

Chart 01: Students' emotions during the English Classes Before the filmic text

The responses of the students from chart 01 showed a surprising diagnosis to the teacher-researcher, when she realized that several students revealed emotions charged with unfavorable mental experiences, because the participants felt fear (4),

anxiety (3), insecurity (7) or confusion (5), and most of the justifications were related to the achievement of good grades and the need to master the subject content, according to excerpt 01:

Excerpt 1

George: "I was afraid of not mastering the content and getting poor grades".

Anthony: "I'm confused when it comes to understanding the content. Insecure when it comes to answering the test and I'm afraid of getting poor grades".

Melody: "The classes are quite interesting, but sometimes I feel lost because it is a foreign language subject. I am passionate about the English language and I end up getting very anxious, but during the classes I become more motivated to specialize in this subject. Like most students, even with doubts, I'm embarrassed to ask.

Hanna: "I feel myself ashamed, because in the class there are several students who speak English so naturally! And I don't". (Source: Author's survey)

In the excerpt above, we can infer that participants felt compelled to have an approval result

continuously, emphasizing content acquisition. And although they said they liked the subject, they also felt

ashamed (5) or anxious (3) to satisfy what was expected of them. The statements of these students recall Damasio's ideas (2000) that refer to the characterization of emotions, affirming that emotions are related to our life's experiences.

Among the students who felt themselves ashamed, we restored Melody, because she said to feel herself ashamed and for this reason she didn't clarify

any doubts during classes; in addition, she also emphasized that is a emotion of most students. Shame is a type of emotion classified by theorists as secondary or social, because it is the result of conventions created in society. This aspect is important to consider since it reveals a phenomenon that interferes with the behavior of students, as well as the fear that is highlighted by some students, as we can see in excerpt 2:

Excerpt 02

Evellyn: "I feel myself very insecure and afraid, because the teacher may ask something I do not know, but I feel happy because in each class I learn more."

Hanna: "I feel insecure because I'm afraid to pronounce words incorrectly".

Annie: "I get nervous because I'm afraid of not getting to do things right".

(Source: Author's survey)

In the excerpt above it was evidenced that Evellyn, Hanna and Annie felt afraid during English classes and at the same time they felt themselves insecure and nervous. Hence, we identified that there was a connection among these emotions. Fear is an emotion categorized as primary and it is elicited due to preserve individuals' life in the face of threats. Reflecting on the classroom, we understand that this emotional reaction of the students represents a form of self-

protection, avoiding constraints caused by exposure to other classmates or to the teacher.

Other primary emotions mentioned by the students in the questionnaire were joy and happiness; 13 students said they felt joyful and 12, happy. With regard to these, we highlighted some of the students' justifications in excerpt 3:

Excerpt 03

Ashley: "I feel myself happy because in English classes the teacher uses an easy and explicative language."

Christian: "Because the English classes were very interesting. And the teacher has a way to teach that leaves everyone around happy."

Meg: "I feel happy because I like the English classes. I like the way the teacher teaches, she explains the content very well."

Evellyn: "I feel happy because every class I learn more."

Karolyn: "I feel happy because the teacher interacts with the class. That's why students get more interested in the classes."

Harry: "Because I think English classes are cool, so I feel myself comfortable and I'm happy when the teacher enters the classroom."

(Source: Author's survey)

From the statements in the excerpt 3 it is possible to notice the influence that some mechanisms, such as the attitudes of a teacher can elicit emotions in students. As well as the relation of happiness with some events identified by them during the classes or as a result of them, such as the use of language, the used pedagogical strategies and the certainty that one is learning. The justifications reported portrayed the importance that the participants attributed to the moments when they created and presented dialogues using the target language, besides the teacher-students or student-student interaction.

This means that teacher's attitudes influence the results obtained in the learning process by students. Another aspect that stands out is that students link the creation of dialogues and classroom relationships with knowledge acquisition. And the students who thought in this way mentioned to feel positive emotions such as happiness, joy, comfort and interest. In their

justifications, it is inferred that such emotions flowed as a result of learning.

These data collected before the use of the filmic text helped the teacher-researcher in the planning of a didactic sequence. Therefore, the activities planned for the classes were based on the assumption that not all students felt at ease in the English language classes, because they felt fear, shame, insecurity, nervousness or anxiety. In addition, it was identified the importance of promoting more activities favoring the participation and interaction of students, mainly focusing on the creation of dialogues.

b) *Practices with a filmic text*

In the planning of the English language classes that composed the context for this research, a total of 07 (seven) stages were foreseen, however, in the development of the study, a total of 13 (thirteen) classes were necessary. The main reason for this change was

the need to provide more hours for students to watch the film and present their textual productions.

In the course of the lessons, the teacher-researcher performed the following activities: screening parts of the film; (the chosen film was "To Save a Life"³); exercises of unscramble; drills exercises; full screening of the film; listening and writing vocabulary activities; production of dialogues; production/presentation of videos or short plays.

Regarding this research's participants profile, the use of the filmic text was very adequate, since many of them reported having contact with the English language outside the classroom by means of films or series. Because it is a pictorial text, films are well accepted by students, as we can identify in the excerpt 04 which exemplify their answers for the following question: Did the film contribute to your learning of English? Justify.

Excerpt 04

Dominic: "Yes. Because the classes were dynamic, escaped the everyday routine and helped students to get interested."

Izabele: "Yes, because it was a new way of interacting with students."

Melody: "Yes, because it showed real facts and made me perceive some life aspects through different eyes. "

(Source: Author's survey)

Based on excerpt 04, it is observed that the filmic text use in the classroom as evidenced by Harmer (2001) concerns some particularities, among which is the fact that students show remarkable interest when they have the opportunity to watch a film, even knowing that they will be asked to perform tasks, because for them it is dynamic, goes beyond the concept of studying a language only by means of grammar or usually text genres that commonly chosen by teachers such as, opinion article, chronicles, short stories, comic strips, etc.. It was an opportunity to discuss various

topics, and the students' day-to-day, such as teenage pregnancy, drug use or racism. In addition to providing the interaction of the participants when they elaborated the dialogues and made the productions of videos and short plays.

All students stated that the film contributed to their English learning and many of them underlined the pronunciation as a preponderant aspect. Others said that it was possible to learn new words. This can be viewed in the excerpt that follows.

Excerpt 05

Hilary: "Yes, because by means of the film I was able to learn several words that I didn't know, and it also helped me pronounce them."

Robert: "All the knowledge provided by the film was good because we learned new words and created sentences."

Tayla: "Yes. Because it helped us to speak English."

(Source: Author's survey)

The answers from excerpt 05 show us that the filmic text helped students toward vocabulary acquisition and words pronunciation. Emphasizing that there are other elements intrinsic to the images, such as facial expressions, intonations, emotions and cultural information that support the understanding of the text. Another factor that stands out in this excerpt concerns the benefit of positioning students in contact with the target language, although one realizes the difficulty that some of them have in reading subtitles or not knowing certain expressions or words, even so

were exposed to authentic dialogues, which favored the practice of reading, listening, writing and speaking.

When using the filmic text, the teacher-researcher focused not only on the school program, but also on using it as an instrument, as stated by Schneuwly (2004). An instrument which is characterized as an act of communication, including speech, writing, gestures, images and sounds. A mediator for discursive action, breaking with the expectation of a mere contemplation of images.

Excerpt 06

Katherine: "By means of the film I had more contact with the English language, in addition I had the opportunity to make a video and I could still learn to speak a few words in English, which I did not know."

Bella: "Yes, because by means of the film I could understand some words."

(Source: Author's survey)

³ To Save a Life tells the story of two friends: Jake and Roger, who knew each other as children, when Roger saves Jake's life by avoiding a hit-and-run. The two boys went to the same school, since elementary school, however, they distanced themselves. In high school, Jake plays basketball for the school team and is one of the most admired boys of all time. However, Roger always suffers bullying. Consequently, Roger does not tolerate this situation and commits suicide. Jake suffers greatly from the loss of his friend and begins to reflect on how he could have averted such a tragedy; thus, he begins to mobilize through the Internet and approach other young people in school, managing to help others not to commit suicide. Throughout the narrative, other themes are addressed, such as drug use, teenage pregnancy, and generational conflict.

A film entertains; and this was quite noticeable given the excitement of the students, but it can also lead them to do diverse readings and to realize how much they already know and how much they are able to accomplish. We can exemplify this through their talks

when the teacher-researcher asked them the following questions: Did you like the film? Why?; Did you understand a few words?; Which ones? and Had you ever seen films with the English subtitle?

Excerpt 07

1. Teacher: Did you like the film? Did you enjoy the film?
2. Students: Yeah! Yeah! Very good!
3. Teacher: Why?!
4. Student: Because it was good!
5. Teacher: Only this?! Is there another special reason?!
6. Student: We could think about how bullying is harmful!

(Source: Author's survey)

We notice in excerpt 07 that students went beyond the linguistic aspects, when they commented on the practice of bullying in schools (lines 06). This generated a production of meaning, because according to Bazerman (2011, p. 41 – Our translation) "[...] people can receive each text in different ways". Regardless of linguistic knowledge, typification, or characterization, students were able to interact with the text. And to go further, by engaging in interactive textual production practices.

In addition, students dedicated themselves to discussing social issues, addressing them from their point of view, and giving them similar outcomes to what they commonly see, or at least what they would like to see. Thus, the learning process became more dynamic and students were inserted into the learning process more actively in classroom practices, since they needed to reflect on a theme and create an oral presentation in English.

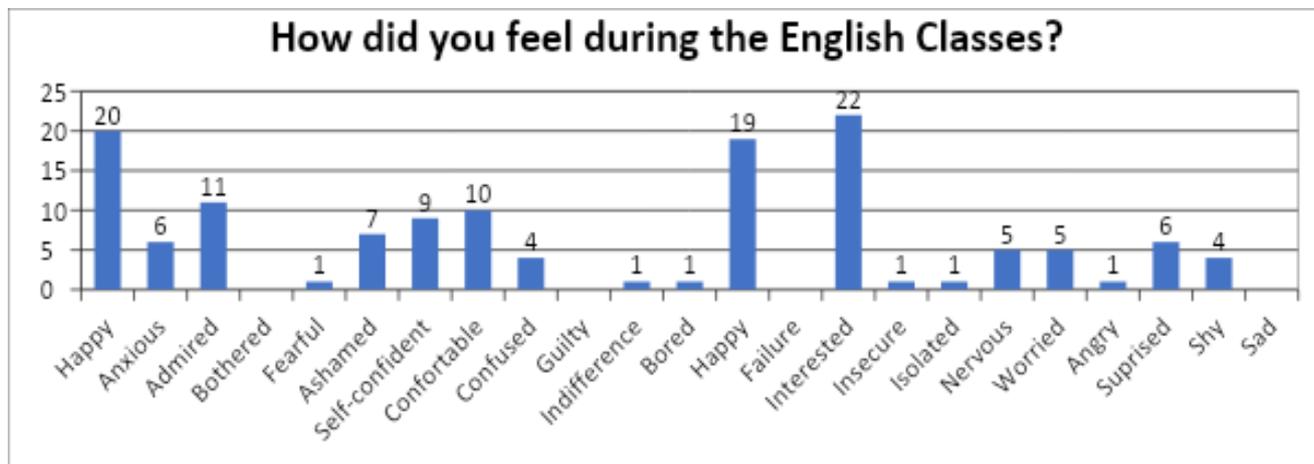
We also found that learning took place from a socio-cultural perspective because the students revealed their way of thinking, speaking and their previous experiences. They used language to plan,

organize ideas, discuss problems and propose solutions. And in this way, students could act in the environment where they lived, establishing relationships and creating meanings.

Students valued the use of words, even if it was just pronouncing them. To Vygotsky (2001), language is considered an instrument and the sign acquires the function of mediating the relationship of men with other men and with objects. And knowing how to "handle" such an instrument provides students with the concreteness of learning, promotes a feeling of joy and the certainty of success.

c) Learners' emotions after the use of a filmic text

After using the filmic text, the teacher-researcher applied another questionnaire and repeated the same question: "How did you feel during English classes? Justify your answer. Consequently, several primary and secondary emotions were mentioned such as joy, fear, happiness, anger and surprise. It is worth noting that other primary emotions such as sadness were not pointed out by the participants, fear only by 01(one) of them, as well as anger.



(Source: Questionnaire 2)

Chart 02: Students' emotions during the English Classes After the filmic text

We will focus on joy and happiness initially. The number of students who felt happy during English classes increased from 13 to 20 and the happy ones

from 12 to 19. We present, therefore, in excerpt 08 some of the students' justifications for feeling joyful or happy:

Excerpt 08

Hilary: "I feel happy because we had more English classes. We learned more and participated during the classes, so we were more confident, and also not ashamed anymore. The classes became quite productive and interesting".

Evellyn: "Happy to see all my colleagues working hard."

(Source: Author's survey)

In excerpt 08 students recognized the classroom as a space of social interactions and the importance of establishing partnerships: teacher-students and student-students. We still visualize in this excerpt what Johnson (2009) exposes on the sociocultural perspective, while emphasizing the importance of creating opportunities for learning to happen through activities that allow apprentices to develop their cognitive skills, engaging them in an interactive process mediated by culture, context and language.

In excerpt 08 students demonstrate a willingness to carry out the proposed activities, corroborating the thought of Damasio (2004, p. 106 – Our translation) when he states that "the conditions of joy are also characterized by a greater ease of the ability to act". Another factor that strikes us is that some students felt joyful or happy because of the performance or effort of other classmates, showing us that happiness and joy are emotions responsible for establishing a bond between students, promoting well-being. Regarding the surprise, we got some comments:

Excerpt 09

Derek: "Because the classes were interactive".

Katherine: "Because the teacher used interesting and curious dynamics, several good and easy learning activities, and she was very supportive showing that she likes what she does"

(Source: Author's survey)

In excerpt 09, it is possible to identify that surprise is correlated to attention, as they demonstrated to be involved in the activities and attentive to the way they were applied. Another aspect that we can stress is the concomitance of other emotions with surprise, because of the 06 (six) students who felt surprised, 04 (four) also felt joyful, 03 (three) happy and 05 (five), interested; among which, 03 (three) also felt anxious, 02 (two) ashamed, 03 (three) nervous and 04 (four) worried. From this information, we conclude that the

surprise can be reciprocated to positive and negative emotions.

Regarding secondary or social emotions, according to the categorization of Damasio (2004), and which were mentioned by students according to the chart 02, we identified: admiration, shame and contempt. The student who felt contempt was not justified, while for admiration, there were two justifications and for shame, only one, as excerpt 10:

Excerpt 10

George: "I was struck by the methodologies applied in the classroom."

Taylor: "I felt cheerful, admired, comfortable, happy and interested because the classes were more outgoing and with interesting content".

Hanna: "I felt ashamed because I pronounce words incorrectly."

(Source: Author's survey)

In the context of excerpt 10, George and Richard denote that admiration are intrinsic to the environment where individuals live, showing us that in such cases, participants do not felt fear or apprehensive, but on the contrary, they felt comfortable, happy or interested. In addition, admiration enabled them to give importance to the pedagogical methodologies and activities employed in the classroom, that is, students noticed and valued situations to which they did not previously payed attention.

In excerpt 10, we can also identify the "shame", quoted by Hanna, and we realize that such an emotion is not related to the violation of an ethical behavior, because it is not about being ashamed to have done something that violates some rule, but it means to feel intimidated before other individuals, because for her, speaking in English presupposes following a pattern, and getting out of that pattern imposes a kind of "self-sabotage". In this case, shame and shyness are related, because the student felt ashamed due to shyness. And referring to shy students, we identified 04 participants, of

which only 01 justify his answer, according to excerpt 11:

Excerpt 11

Anthony: "I am shy when I have to speak English".

(Source: Author's survey)

Based on Anthony's statement (excerpt 11) and the field diary of this research, we observed the way the students dealt with new situations in classroom. Some acted more calmly, while others still felt fearful, and this reaction is understandable, given that shyness is a feeling identified by Damasio (1994) as a variant of fear. Although shyness is a subtler reaction, it is worth noting that the said student was not paralyzed as it is peculiar when facing a threat, trying to escape or avoiding it; but

on the contrary, there was an awareness of such emotion and consequently a confrontation of the situation.

Another emotion observed in the behavior of the students was anxiety, a variant of the primary emotion: sadness. It was identified that there was an increase from 03 (three) to 06 (six) anxious students. Of these, we obtained some justifications as follows:

Excerpt 12

Bella: "I was very anxious to see how the other students performed."

Mariah: "Looking forward to watching the videos of my classmates."

(Source: Author's survey)

From the statements of Bella and Mariah, we noticed that they were anxious, but this reflected into a restless and troubled behavior due to presentation of dialogues. The concern and interest were mentioned by 04 (four) students who were also feeling anxious. Therefore, we inferred that anxiety, concern and interest were interconnected in this context experienced by the participants.

In addition to the primary and secondary emotions, which we mentioned earlier, we identified in

this research some that are not included in the categorization of Damasio (1994/2004), such as: confidence, comfort, confusion, boredom, interest, insecurity, isolation, nervousness and concern, according to graphic 2. Of these, the most evident by the participants were feeling confident, comfortable and interested. Being a quantitative of 09, 10 and 22 students who felt so, respectively. Therefore, there is an interconnection of these emotions, as we can see in excerpt 13:

Excerpt 13

Annie: "I was confident because I felt comfortable and happy since I have learned much more English!"

Lincoln: "I really liked the classes, I felt comfortable because the teacher gave us this confidence that we could truly learn the English language."

(Source: Author's survey)

It is inferred from the justifications in excerpt 13, a connection among the emotion of trust with the acquisition of learning as well as the stimuli promoted by the teacher, such as words of encouragement, use of certain pedagogical strategies and activities applied during English classes. Therefore, as the number of confident students increased, there was a reduction of insecure students, and this phenomenon was something positive for the implementation of the proposed activities, because it favored the acceptance of the challenges related to the presentations of dialogues

On the activities that promote classroom interaction, Johnson (2009) warns us that not all of them are productive and also accentuates the importance of

checking if mediation is being dialogical, helping students to develop their capacity to generate meaning, that is, providing conditions to support them in their attempts to use the target language. And these attempts to use English in a dialogical way were promoted during this research, through activities that stimulated interaction. However, we noticed that emotions such as boredom, isolation, nervousness and concern emerged jointly. Boredom was justified by 01 (one) student: George. The boredom was momentary, lasting only until the presentations of the dialogues. In addition, it was not related to disinterest, as he also felt interested and admired for the content and lessons as follows in excerpt 14:

Excerpt 14

George: "Because it last to start the videos and short plays presentations."

(Source: Author's survey)

Student who felt isolated did not justify such emotion, but it was noticed that he also felt cheerful, confident, comfortable, happy and interested. The nervousness was evidenced by 05 (five) students. Despite they didn't justify, it was noticed during the

classes that the main reason were the challengeable speaking activities proposed. As to the concern was indicated by 04 (four) students, among these, Mariah and Izabele presented reasons, according to excerpt 15:

Excerpt 15

Bella: "We had little time to create the dialogue and produce a video, we had a lot of rush, but it was great."

Mariah: "I was worried about what was happening while I missed some classes."

Source: (Author's survey)

Bella and Mariah felt concerned, but it differs from the biological phenomenon described by Damasio (1994), who states that the organism of a concerned individual suffers imbalance and a consequent malaise, distress, discouragement or sadness. However, in the case of these students, it was identified that concomitantly with the concern, they felt happy, admired, confident, interested, surprised or happy. It was observed, therefore, that the concern was related to the desire to carry out the proposed activities and visualize the results obtained.

As for the results obtained, we conclude that before the use of the filmic text, the students referred to the teacher's methodology, the acquisition of knowledge and the content addressed; after the use of the filmic text, the participants focused on the development of collaborative activities, the use of the film and the development of role plays.

Hence, the answers of the students revealed what happens in the learning process; and, in this process, the emotions are also inserted and as warned Swain (2013), it is necessary to reflect on what is mediating the reactions of students in relation to teachers and the activities proposed in the classroom. These reactions can be diverse and are fully interconnected to the cognitive aspects.

We also identified in the data analysis, an attempt of the teacher-researcher to develop a work from the sociocultural perspective, according to the concept of dialogic mediation presented by Johnson (2009), which presupposes that actions mediated among students, students and teachers function as a kind of "scaffolding" enabling them to construct their cognitive and social development. Thus, we will move to a reflection on the indicators of the attainment of the objectives proposed in this research and how this cognitive construction took place in the context of emotions, as well as the contributions of the filmic text to the students' learning.

V. CONCLUSION

The data revealed that the use of filmic text contributed to the students' learning process. At first, through listening exercises, a new experience for many of them, which allowed them to have contact with the

original accent of the characters, and challenge them to read what was written in the caption, comparing it to the audio. Some students even questioned whether the translations in Portuguese were correct, as they noticed the differences between audio and writing.

Other moments in which the students had the opportunity to practice listening, as well as pronunciation, concern the presentations of the dialogues produced by them. We emphasize that although some participants had difficulty in pronouncing some words, the teacher-researcher encouraged them to speak without fear, positioning herself next to them. Thus, we realized that even feeling shy or afraid to speak in English before colleagues, little by little, and through incentives, it was possible to get students to participate in communication situations.

Referring to the textual production activities, we can highlight that the students had some difficulties to elaborate sentences, since they often wanted to express something that they did not yet know how to write in English, structure sentences that syntactically resembled the Portuguese language. On these occasions, the teacher-researcher made the necessary interventions.

Textual production activities were a challenge for students, requiring them to take a proactive stance, to work as a team, to plan activities and to solve problems. We point out that although one of the teams did not fulfill all the tasks, most of the students achieved the proposed objectives, showed a lot of dedication, and despite the shyness or anxiety in some moments, we noticed an atmosphere of well-being being and expressions of joy during the classes.

Therefore, the filmic text provided a greater involvement of students with the English language, because it functioned as an instrument that promoted interaction among participants, stimulated reflections on social themes such as drug use, racism and teenage pregnancy, besides providing opportunities for various oral and written practices.

Orality was one of the skills most mentioned by students when referring to dialogues creation. Consequently, we noticed that they felt more autonomous and less dependent on a grammatical. In this context, the expressions from the filmic text helped them to express themselves.

And while elaborating dialogues, producing videos or short plays, students got more confident, dealing with the language-targeted, in so far as they overcame the proposed challenges of writing or pronunciation in English and they discerned that perfect performances were not being demanded of them, on the contrary, their performance and evolution were valued. In addition, we observed that the interaction of the participants in the work teams was also a factor that cooperated to make them more confident.

Therefore, it was evident a relationship among learning and the emotional state of individuals. And when it comes to this research, we identified that the English language activities carried out in the classroom with filmic text elicited most diverse emotions. The interest, for example, was mentioned by the students at the end of the didactic sequence and they justified feeling this way due to the methodological strategies used by the teacher-researcher.

Another aspect that was evidenced by the data, concerns the simultaneity of positive and negative emotions during all classes. There was no constancy of an emotional state only, occurring a juxtaposition of joy, happiness, confidence, shyness and nervousness, in various situations. However, we found that having more participants with positive emotions contributed to the achievement of the proposed objectives.

These data call attention, because emotions interfered on students' decision making. In other words, their attitudes in the classroom, such as speaking in English with their classmates, making presentations in front of the entire class or writing a text are connected to how they felt themselves. Giving students space to express their feelings, enabled us to understand why many students had difficulty in performing certain tasks considering that many of them felt afraid of not getting good grades as well as of the teacher's inquiries or the reasons why they were ashamed when pronouncing some words in the classroom or insecure to realize some tasks.

Considering Damasio's studies (1994), we recognize that the tasks requested by the teacher-researcher functioned as stimuli that triggered the students' somatic markers, a term used by Damasio when referring to bodily reactions that occur due to previous experiences. Somatic marker will be interpreted positively when the stimulus results in an incentive, and negatively when it serves as an alarm.

Hence when the teacher asked the students to perform a certain task that activated a bad or unpleasant memory, this indicated that something was presumably "dangerous" and resulted into shame or embarrassment, affecting the effectiveness of the expected results, in particular, the use of the target language. In this context, observing the used activities and the attitude of the teacher-researcher, we highlight the importance of promoting the teacher-students and

student-student interaction because we identified that interaction fosters positive emotions, such as interest, joy, confidence, admiration and happiness.

It is an essentially human activity; built on the daily relationship with the other. Since the individuals involved in this process promote encounters full of emotions. Sometimes cheerful, sometimes sad, sometimes afraid or angry, as many of the participants of this research felt themselves. Outlining new scenarios in the classroom every day, where the teacher will need to make use of resources that often need to be learned: attentive listening, a keen eye, a firm speech, but sensitive to each other.

In fact, there are several theoretical analyses and considerations about emotions. And aiming to find a more suitable resource for the students-participants of this research, we identified that the filmic text helped greatly in the process of learning the English language, as it enabled the students to perform diverse readings and to have contact with the target language addressed in a communicational situation. Since the students were not only spectators, but they were invited to explore English language in its lexical and linguistic aspects, to have contact with expressions and vocabulary through listening, writing, reading and speaking activities; being challenged to use it, create stories and reflect on social themes. In an intrinsic way, without realizing it, they faced and often overcame shyness, fear, insecurity or the feeling of failure. And they had very successful results, because the learning occurred both at the cognitive and emotional level.

Despite the challenges inherent in learning the English language in public school, among which we can mention: the incompatibility of the contents stipulated in the school program with the quantity of classes available, the workload of 1h lesson per week and the lack of a specific infrastructure for teaching English, such as a Language Lab, for example, we observed that many students-participants of this research who were in early stages with regard to written or oral textual production in English, were able to develop such skills.

In addition to the challenges mentioned above, the teacher still finds a continuous task, which is that of choice. You need to prepare a lesson and then the elucubrations begin: which text to use? Why? With whom? Where? How? Ready. Here begins a journey full of options, attempts, mistakes, successes, adjustments, archaisms and innovations. To have in mind and before you, the task of "teaching" a certain group of students, requires making decisions, which in turn usually means resorting to diverse activities and strategies, which will be the archetypes for the development of a given content.

In this context, it is not rare that we need to envision new ideas and new attitudes, which can only be driven and gain space when concepts are reinvented; using language as an instrument of action



and transformation, not only the cognitive and cultural capacity of students, but the environment where such students can act and intervene.

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Rediscovering the Significance of Environmental Education: A New Type of Environmental Education Found in Picture Books

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Abstract- This paper aimed to apply Fromm's theories of social character and insights into the human being as the basis of the educational philosophy of EE. Development of a social character with predominance of the "being mode of existence" is not feasible because of the unpredictability of the outcome. An attempt to contrive another educational philosophy and to build another theory of EE that promises viability would be fruitless. The tale of EE is a failed project.

We can see how Fromm's theories of society and his view of man can update and enrich our visions of education we have in hand. Likewise, now that we look at environmental picture books as a framework, we can recognize the "being mode" more realistically.

What then is the significance of EE? Recognizing the pre-existing EE, rediscovering the lost "teaching and learning" practice, is the new significance of EE. "Look! Here are traces of EE!"

Keywords: *environmental education, picture books, erich fromm.*

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What then is the significance of EE? Recognizing the pre-existing EE, rediscovering the lost "teaching and learning" practice, is the new significance of EE. "Look! Here are traces of EE!" To point this out again and again wherever possible, to sustain the long practice of teaching and learning for humans to live in harmony with nature -- that is the important role of the environmental education.

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I. CAN ENVIRONMENTAL EDUCATION SAVE THE EARTH? -- QUESTIONABLE VIABILITY AND FUTURE PROSPECTS

"Can Environmental Education (hereinafter EE) realize a sustainable society?" -- This is a seemingly honest but tricky question. If we say "yes," we will be asked to give concrete methods and the evidence that proves its viability, and immediately we will be stuck for an answer. On the other hand, if we say "no," we will be tripped up by the question "What then is the existential significance of EE?"

How would I answer this question myself? -- "Alas, EE may not be of much help as it stands, but what about Education for Sustainability (EfS), the upscaled successor of EE?"

As known, half a century have passed since EE was established around 1970 with an educational objective to solve global environmental problems. While EE has gained social recognition, its viability to contribute to the solution of environmental problems has come to be questioned. The Declaration of Thessaloniki

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in 1997 (International Conference on Environment and Society: Education and Public Awareness for Sustainability) reaffirmed that EE may also be referred to as education for environment and sustainability (UNESCO, 1997). An initiative "The Decade of Education for Sustainable Development 2005-2014" led to further relabeling of EE to "Education for Sustainable Development: ESD" (UNESCO, 2005). The question on the viability of EE thus produced new types of environmental education -- EfS and ESD -- which are, in effect, relabeled EE.

With EE having different names now, the following answer may also be possible to the question above:

"While the current EE is useless, a brand new type of Education X concerning environment -- which is neither EfS nor ESD and even more advanced than either of them -- may be useful." However, we already know that this answer is hardly acceptable because, undoubtedly, the same type of questions, only having the term EE replaced with X, will be posed against Education X.

How could environmental education (EE, hereinafter including EfS and ESD), which has come to be considered questionable in viability, advocate its own significance? Can education solve environmental problems in the first place? If not, does it have pedagogical significance? This paper will discuss these issues vital to the existence of EE. Frankly speaking, I find it hard to be a blind optimist about EE having the educational aim to solve environmental problems. This does not mean that I deny the significance of its existence. My feelings toward EE are "double bind-ish" (cf. Jickling, 1992). What can we do in future to free ourselves from the double bind? I would like to make an attempt to rediscover the significance of EE.

II. DIRECTION OF HUMAN FORMATION IN A SUSTAINABLE SOCIETY: FINDING CLUES IN FROMM'S THEORIES

a) *Fromm's views of society and man*

Education has always been expected as a panacea for all sorts of social problems. It is safe to say that a problem produces an education named after it. The list of educations seeking solutions to problems

goes on endlessly, such as consumer education, human rights education, sex education, and so on. Some of these may have been successful. Unfortunately, however, the environmental education in Japan has not fully lived up to its expectations. Why is that?

To build a philosophy of EE for solution of environmental issues from a pedagogical standpoint, it is necessary to have visions of 1) the direction of human formation and 2) a sustainable society. As far as at least Japan is concerned, such visions have not been considered seriously enough. Educational values in the field of EE, i.e., visions of the ideal person we want to bring up, and of what the society and culture are like for such an ideal person to live in, have never been debated in Japan. This explains the current vulnerable state of EE in Japan (Imamura, 2017).

To break through this situation, I conducted a theoretical study to apply the theories of Erich Fromm (1900-1980), a psychoanalyst and social psychologist, as the basis of the philosophy of EE, which is summarized as follows in relation to the two visions above: 1) Social character formation based on the "being mode of existence" according to Fromm can become the linchpin in resetting the educational objective, and 2) EE can be reinterpreted as education for development of a social character, or for formation of human beings (Imamura, 2005).

Fromm demonstrated, from a socioanalytic perspective, that human characters are developed by social and economic conditions in which we live, and argued, from a psychoanalytic perspective, that men are determined by unconscious vitalities. His analysis in general enriched the existing views of education to create psychoanalytic and social awareness of the social character (e.g. Claßen, 1987). Let us have a closer look at this:

Fromm showed a dynamism that the socioeconomic structure creates a social character that reproduces the structure so that a lifestyle is designed based on this social structure. He argues that the human being is a product of social relations, an existence that mutually and dynamically builds the

lifestyle and socioeconomic structure. His view of human beings as a psychoanalyst is that the social character is determined by two potential orientations, or the proportion of two types of vitalities, the "having" and "being" modes of existence.

I will briefly explain the two modes: "Having" is a mode of self-recognition in the form of "I am = what I have and what I consume" (Fromm, 1976, 15). "My relationship to the world is one of possessing and owning, one in which I want to make everybody and everything, including myself, my property" (Fromm, 1976, 65). When this is the basic relationship to one's life, one's attitude is predominantly the having mode of existence.

On the other hand, when one feels one exists through productive work, love, consideration arising from one's true nature, the will to give and share with others, or to make a sacrifice, one is already experiencing "being," the other mode of existence. In Fromm's words, being is "the mode of existence in which one neither has anything nor craves to have something, but is joyous, employs one's faculties productively, is *oned* to the world" (Fromm, 1976, 87-90). These are traits that Fromm previously described as "productive character," an element that shows the life-loving goodness of man he explains with the term "biophilia," the passionate love of life and of all that is alive.

"Being" is neither a tendency to narcissism nor self-centeredness. Simply being there as an individual cannot make one feel fulfilled. One always needs personal "productive relatedness" with others or the world -- to be with somebody or something -- to feel fulfilled (Fromm, 1993, 117-119). To be more specific, one feels fulfilled by humane actions such as consideration for others, sacrifice, sharing, and dedication, or relatedness such as fusion with the world.

b) *EE approach based on Fromm's theories*

Fromm's dynamic view of society and relatively fixed view of human nature discussed above can be illustrated in relation to the direction of education based on his theories as shown in FIG. 1.

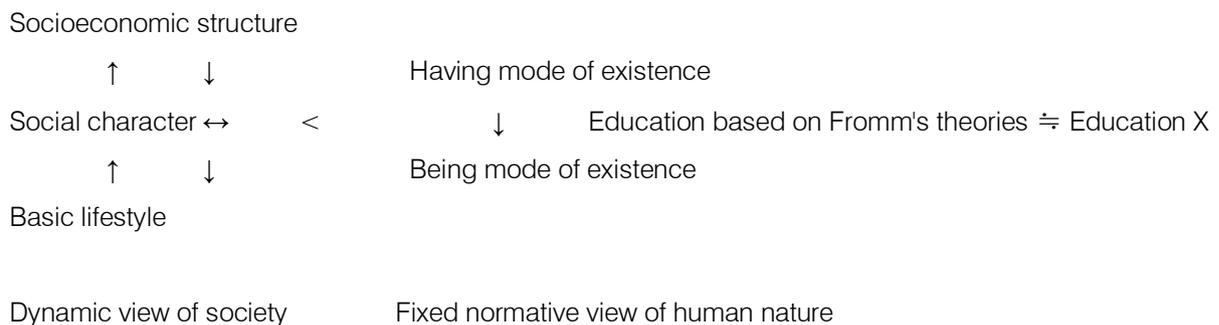


Fig. 1: Relationship between Fromm's social character and two modes of existence

The left side of the figure sums up Fromm's dynamic view of society. The social character in the middle is developed through mutual relationships with the basic lifestyle, i.e., lifestyle habits and behaviors, and the socioeconomic structure, as indicated by arrows. A highly industrialized society creates a character structure that craves to own and consume for the stability of its social system. The established squandering lifestyle ensures stability of the industrial society. Thus the social character serves as the cement of the socioeconomic structure. In other words, the industrial social system intends to maintain its main system itself by creating, encompassing, and operating the education system as its sub-system.

This argument of Fromm's applies to Japan, too. Since the rapid economic growth in the 1960s until the burst of the bubble economy in the 1990s, the education system in Japan has committed to develop a character with predominance of the "having mode of existence." It was tacitly understood that excelling in school, graduating from a high-status university, and getting a high-salary job was desirable. People believed that they could become happy if they could lead a rich, comfortable, and convenient consumer life. Nowadays this tendency has somewhat receded, but there certainly were a large number of people who felt a sense of "being" by symbolically "having" money, property, consumer goods, and pleasure. The consequences were the mass-production and mass-consumption, and the resultant environmental problems.

Let us now look at the fixed normative view of human nature in the middle in FIG. 1, where Fromm's psychoanalytic view of humans is shown. In an attempt to present a mass audience with an easy-to-follow logic, Fromm often described the goodness and badness of human nature in dualistic terms. This eventually led to his definitions of the "having" and "being" modes in later life. According to him, the social character is determined by which of these is predominant. These two modes are not two extreme opposites or either-or tendencies, but rather, vectors of vitality inherent in the human being; when one grows, the other decreases.

On the right side of FIG. 1 is education based on Fromm's theories. Education X aims at development of a social character with predominance of "being" over "having." By building a social character who lives by "being with somebody/something," and by reducing the number of people who acknowledge themselves by "having" or consuming, the total amounts of consumption and production are expected to decrease, which may change the industrial social structure. Transformation from a society dominated by a having-oriented social character into a society of a social character with more predominance of "being" will ensure the viability of solving environmental problems. The society will be reshaped into a sustainable one in its

entirety. Education X in this case is the dynamite of the society. The paradox of this logic will be discussed later.

The being mode of existence is possible only when there is a society or community that supports it. Now, turning from the direction of individual human formation, let us discuss visions of sustainable societies. Can a vision of a being-predominant society be shared among us?

Social histories of indigenous peoples in various regions before the impact of Western culture may tell us something. Or, ecologically sustainable indigenous communities with non-Western cultures in modern times, for example, the communities of Aboriginal peoples, the Kwakiutl, the Bari, and the Hopi, may help, too. The worlds of such communities may seem illogical and unscientific from the modern rationalistic and scientific view. On the other hand, sustainability is secure in these communities. While lacking modern school education systems, these peoples pass tacit knowledge that promises sustainability from one generation to another (Bowers, 1993).

Another reference we can turn to is the Amish society, a religious group that resides in Ohio, Pennsylvania, and other Midwestern regions. The Amish preserve the lifestyle of the time in which they immigrated, make a living mostly farming, and are basically self-sufficient. They do not use electrical products, automobiles, and telephones, and eschew most modern conveniences of material civilization of the American society. In some periods they rejected the American public education system and taught their children in their own way to reproduce their community (Hostetler, 1993).

What is worth noting is that sustainable communities, whether traditional indigenous peoples or religious groups in modern times, have directed their own educations and reproduced themselves. The social character that functions as cement to maintain a group is mostly developed by education (Knapp, 1989). How they teach their children in a group is the lifeline of the group. Every group therefore has given great importance to their own education. While these models may give us a hint, they are not groups that have purposefully embodied the being mode of existence.

The pedagogical acceptance of Fromm's theories as described above -- philosophy of Education X -- is naive, one-dimensional, and lacks verifiability. It may be theoretically presentable, but entails significant difficulties. How a community can develop a social character with predominance of "being" is not clear, because there can hardly be a unified "being mode," which makes it difficult to build a framework of education of that community. Indigenous cultures and the education in social groups such as the Amish do not directly link to being-oriented education. This is the

major drawback of Education X, i.e., the lack of a vision of a society in which Education X is feasible.

An even more serious challenge is the impracticability of concepts of planning for the education aimed at development of a being-predominant social character based on the theories of Fromm. The next section will discuss this point.

III. PITFALL OF CONCEPTS OF PLANNING FOR EE

a) *EE as an incomplete project*

When accepting a certain social change approach as an educational theory in the area of EE, planning can cause a big aporia. This is a serious issue and will be discussed next.

Environmental problems started to arise almost at the same time as the development of the industrial society. A significant amount of time was spent for scientific positive determination of the causes, and in the meantime the problems escalated and involved a large number of victims. In the case of regional environmental issues of small areas such as the four major diseases caused by environmental pollution in Japan, the causal relationship could be determined to some extent to name who was responsible. Fortunately, the outcome of environmental destruction was reversible, though partially, so that some attempts have been made to solve the problems.

On the other hand, scientific and positive research of global environmental issues, typically global warming and ozone depletion, is difficult. It is not even possible to identify what is responsible because of the convoluted relationships between culprits and victims. Sometimes the environment may be irreversibly changed. In this regard, global environmental issues differ substantially from regional environmental problems. Despite this fact, measures have been taken for solution of global environmental issues in the same manner as they are for dealing with regional environmental problems. One of these measures was education -- namely, EE.

From a scientific point of view, it is only natural to think that we need opportunities to learn what behaviors are beneficial to the environment. Accordingly, scientific EE theories were formulated with an educational goal for the solution of global environmental problems. Emphasis was put on scientific recognition for the understanding of problem-generating mechanisms, and on the education practice that encourage mechanical precautionary actions. Thus EE, or the "tale" of scientific, international, and planned education, unfolded: It was engendered by the discovery of global environmental problems by the science and the necessity of mechanical measures (definite beginning of the tale), and through the processes of development and planning of techniques

for solution of global environmental problems (the middle where the tale evolved), reached the assertion that solution and prevention of global environmental issues by means of EE were possible (end of the tale).

This mechanical-technical "tale" that created EE defined the characteristics of EE itself. Mechanical-technical EE has been developed based on an initiative called the RDDA (Research, Development, Dissemination/Diffusion, and Adoption) approach. (e.g., Robottom I., 1987, and Robert B.S., 2007). Specifically, according to the RDDA approach for EE, teachers and researchers first conduct research on environmental issues such as waste, water, air, ecosystems, and so on. Then they develop teaching materials and curriculums for dealing with these environmental issues, and make teachers' manuals. These materials, curriculums, and manuals are promoted and distributed so that they are adopted in as many schools as possible.

The RDDA approach was an effective technique in terms of wide diffusion of EE through material development by dedicated teachers and researchers, and EE programs and techniques have been developed so far in this way. However, the RDDA approach entails the danger of producing teachers who unquestioningly and blindly accept technocracy, merely passing along scientific positive information on environment, and passively consuming the developed materials and techniques. Moreover, such teachers who depend on technocrats and casually put techniques into practice without critical thinking may fall into a pitfall of losing their own rich skills of "teaching and learning" about the environment.

Here the term "mechanical" is used along with "technical," because they are not clearly distinguishable. When we think of the society's underlying sense of values -- economy/efficiency supremacy seeking maximum efficiency relative to economic costs, human supremacy justifying human alteration of nature itself and natural processes in accordance with human purpose-rationality, and technology supremacy claiming the mechanical revelation of truths and renewal of technologies being goodness themselves, these two words are inextricably linked and intertwined, hence the term "mechanical-technical."

For example, a study conducted in the mechanical-technical mindset first shows a result that global environmental issues are attributable to the lack of nature experience in infancy. Development of programs and techniques for nature experience education ensues. The designed programs is promoted, in an attempt to increase the opportunities for infants to experience nature. Many kindergartens and nurseries adopt the programs. The envisioned final goal is that the problem will be solved by the children who experienced these programs taking actions to tackle environmental issues when they grow up.

In Japan, many theorists and practitioners of EE came to believe in educational planning that would enable control of human behaviors and construction of a new social system, on the theoretical and quantitative basis of environmental carrying capacity, by reviewing the modern lifestyle from the scientific perspective of environmental sustainability. They talked of EE in a mechanical-technical manner as if development of "production techniques of environment-friendly humans" was a possibility. Put differently, they have followed the story of science and technology being practicable and able to alter the natural things and processes.

Such a tale entails a potentially serious problem in two senses.

First, from a falsificationist's view of science that falsifiability of a theory increases with the progress of science, mechanical-technical EE is only an ad hoc hypothesis unless completeness of science is guaranteed in infinite time and space. For example, an assertion that a certain substance is good/bad to the environment could be contradicted by future advanced science. As to the positivist's starting point that alleges lack of nature experience in infancy, the reasons of the shortfall are not scientifically determinable.

Second, the envisaged goal of the educational effect that children educated in a certain way would take environmentally beneficial actions in future when they grow up is hazy. An action thought to benefit the environment at one point could be proved wrong by future science, which would be a critical issue. It is unforeseeable if nature experience in infancy is effective for future solution of environmental issues. In short, unless some facts are scientifically proven to be permanently true so that all results are correctly predictable, the RDDA approach is nothing but an incomplete project.

b) *Aporia of mechanical-technical EE*

What can bring about an even more serious error is the mechanistic view of nature that underlies the mechanical-technical aspect of EE, and similarly, the innocent trust in manipulability of nature. Additionally, mechanistic views of human formation, technology supremacy, and purpose-rationality that treats EE as political means can exacerbate the problem.

Mechanical-technical EE, in pursuing solutions to global environmental issues, conceives nature as isolated from humans from the beginning, and perceives problems as happening in the environment in a scientific and biological sense. Moreover, this comes with the presupposition provided by epistemological understanding and cultural criticism that the problems can be solved by changing human behavior. Thus the problem solving attempt follows the RDDA approach and process steps integral therewith, i.e., the process flow of "problem recognition-learning-thinking-action" based on purpose-rationality with the anthropocentric

mindset. When failures of modern purpose-rational acts and capitalism brought about environmental problems, how can this approach of tackling with the problems with plans and ideas in the name of EE backed by the same purpose-rationality lead to a solution? Only a vicious circle awaits because this scientific positive approach further complicates and intensifies the issues.

Assuming that a theory and its method of education for building a social character with predominance of "being" were developed, an attempt to form human and a society in a mechanical-technical manner would have ambiguous starting point and goal as with the example of nature experience education mentioned above. Namely, Education X based on Fromm's theories aiming at development of a being-predominant social character may not unfold as planned. It is not only children but nature that sometimes shows a most unexpected outcome beyond the human ideas of planning. The idea of producing environmental-friendly humans in a mechanical-technical way thus falls into an aporia.

Fromm of course did not contemplate such education. "Being is indescribable in words and is communicable only by sharing my experience" (Fromm, 1976, 15). Rainer Funk, the literary executor of Fromm, wrote, "Fromm withdrew the chapters on 'Steps toward Being' from the typescript shortly before the typesetting of *To Have Or to Be?* because he believed that his book could be misunderstood to mean that each individual has only to search for spiritual wellbeing in the awareness, development, and analysis of himself without changing the economic realities that produce the having mode" (Fromm, 1993, vii). Namely, humans are inseparable from social change, i.e., any acts based on an educational plan are useless in the face of great nature and in view of the social system theory.

Is Education X based on Fromm's theories of no use at all? Is there no way of circumventing the aporia? Not necessarily. Understanding Fromm's "being" provides a way to the discovery of a new type of EE, as discussed below.

IV. ENVIRONMENTAL PICTURE BOOKS EMBODYING THE BEING MODE OF EXISTENCE

a) *Environmental picture books as a new viewpoint*

How do we recognize the being mode as defined by Fromm? A clue can be found where it is least expected; the world of picture books. Apropos of nothing though it may seem, this section shares picture book experiences for deeper understanding of the being mode.

The term "environmental picture book" was coined in Japan in the 1990s (Imamura 2007). Simply put, an "environmental picture book" is a picture book that is produced as an educational material with an aim

to solve environmental problems. Circulation of this term gave the momentum to the publication of a large number of environmental picture books. This allows us now to turn to picture books with the new terminology (environmental picture book) and perspective. Looking over the picture books currently in print including those published before 1990, two types are discernible in "environmental picture books." One is idea-based, and the other is pre-existing. The distinction is briefly explained below.

First, idea-based environmental picture books are those with a clear objective indication of having been produced with an awareness of EE. In addition to the title and contents, the book usually contains phrases such as "environmental picture book," "environmental awareness," "environmental protection," "for protecting the earth," etc. in the afterword or commentary, or on the belly-band, flaps, dust jacket, seal, or bookmark. These indicators ensure that it is clear that producers of the book -- author, translator, illustrator, planner, publisher, etc. -- intentionally planned and produced the book, fully aware of its use as a material of EE. One example of such picture books is *Captain Eco and the Fate of the Earth* published in 1991 by Dorling Kindersley, written by Jonathon Porritt and illustrated by Ellis Nadler. This book was translated into Japanese and published in Japan in 1992. The contents will not be discussed here due to space limitations.

Idea-based environmental picture books have been made in a mechanical, technical, intentional, and planned manner as materials for educating people to be friendly to the environment. They have two characteristics: They depict facts of environmental issues as the motif; and they contain messages that promote actions relating to environmental conservation. Admittedly, these picture books themselves are educationally worthwhile. Not only writers/illustrators of children's books but children and amateurs are often involved in the making of the books. Communities such as local governments and NPOs produce idea-based environmental picture books, and organize environmental picture book contests. These production processes are very meaningful. Even so, the idea-based type is not worthy of a high opinion because of its mechanical-technical aspect that will not be discussed here.

Second, pre-existing environmental picture books are those that were not intended for EE. They possess absolutely no indicators that objectively show any intentions in this regard. The producers of the books most probably did not intend them to be used as a material of EE. Or they were published before the term "environmental education" emerged. These books, however, tell us about the connection between human and nature/environment. They can affect our lives depending on our points of view. These picture books

allow the reader with a viewpoint of EE or environmental picture books to discover elements of EE. The following is one example of these books:

The Little House written by Burton V.L. (1909-1968) and published in 1942 by HMH Books for Young Readers was translated into Japanese and published in Japan in 1965, and has been constantly in print.

The story is briefly as follows. The countryside where the Little House stood is turned into a city and all the nature and rustic landscapes are gone. The Little House moves to another countryside and she would never want to live in the city. The book suggests attractions of nature and life in the countryside. The readers are free to interpret the book as they want. The interpretation from the perspective of EE would be unambiguous. The plot, though, could make people stop to think about their lives in a way, because it suggests that living in the countryside is the only solution to various problems involved in urbanization.

As demonstrated above, there is a familiar place that has slipped attention so far, where the "teaching = learning (imitation)" relationship in the issue of nature and environment has been established unintentionally and in an unplanned manner: Picture books, i.e., EE found in them.

b) *Repurposing environmental picture books as a framework*

When we look at picture books from this perspective, we can discover pre-existing environmental picture books that take us to the "being mode of existence." Two picture books are discussed below in some detail.

First, let us consider *Little Blue and Little Yellow* created in 1959 by Lionni L. (1910-1999), who worked both in Italy and in the US.

"Little blue" and "little yellow" -- colors endorsed with human traits and depicted as children -- are best friends. One day, little blue wanted to play with little yellow and went out to look for him. He looked everywhere, and when they finally met they were so happy, and they hugged and hugged, until they became one and green. After having played together, when they returned home, their parents do not recognize them. Sad little blue and little yellow cried and cried until they were all blue and yellow tears. Blue tears and yellow tears became little blue and little yellow again. This picture book depicts unification with others as will be explained later.

Let us now turn to another picture book. An American illustrator and writer Sendak M.B. (1928-2012) wrote and illustrated more than 80 children's books loved by not just children but adults as well. His most famous book is *Where the Wild Things Are*, which was published in 1963 and for which he won the Caldecott Medal. Estimated to have sold 20 million copies, it is one of the best-selling books in the world. Spike Jonze

directed a motion picture adaptation of the book in 2009 (released in Japan in 2010).

The story goes like this: One night, Max, the boy protagonist, wears his wolf suit, and with a hammer and a fork, makes mischief of all sorts through his household, chasing the dog around, etc. His mother calls him "Wild thing!" Max retaliates, saying "I'll eat you up!" His angry mother sends him to bed without dinner. Magical things happen one after another in Max's room. Trees grow and grow into a forest. An ocean tumbles by. Max sails off to "where the wild things are," where he is made "king of all wild things." "And now," cries Max, "let the wild rumpus start!"

Max then enjoys a romp with the wild things, ecstatic. The six facing pages illustrating the fun time, the frolic with the wild things, is the climax scene of the book. With no words. The facing pages are all pictures. Having had enough, Max starts to miss home. The wild things cry "Please don't go, we'll eat you up -- we love you so!" but Max waves them good-bye and returns to his room. There he finds his supper waiting for him, still hot. This is roughly the plot.

It is notable that the boy Max wearing a wolf suit becomes like an animal. Max finds himself in the realm of animals and experiences ecstatic moments without words -- the six facing pages. In the world of the wild things, Max unites with the world. The boundaries between him and the world melted away and, he *oned* himself with the world -- the being mode of existence as termed by Fromm.

Humans have self-awareness because of which we feel split from others and the world, which Fromm called existential dichotomy. This is why we try to unify with others and the world that are objectively perceived. The picture books discussed above show this unification. A human once isolated is united with others and the world again. The experience of being one with others/world may be called a "dissolving experience" in which the boundaries separating them melt away. When we are absorbed in a fun activity, or admiring a fascinating landscape, we sometimes feel as if the boundaries between ourselves and the world surrounding us vanished. This ecstatic moment of perceiving the melting boundary between oneself and the world shall be called "dissolving experience" here.

We have self-awareness, seek our own identities, and live in the "human world (here)" based on labor, i.e., based on modern rationalism and capitalism. Our general sense of values is that efficiency, profit, and pleasure are desirable. On the other hand, sometimes we live in the "world of vitality (there)" -- irrational animal world. We indulge in skydiving and bungee jumping for no apparent reason. We drink nutritionally unnecessary alcohol. We ride roller coasters to little advantage. These are all considered playing. We play in one with wind, soil, and land, oblivious to our own selves. This is

a catharsis more than anything else. Sometimes we wander over "there," and come back "here."

In my view, Sendak showed the extension of two worlds in which humans live. "Here" is the human world, and "there" is the animal world. Occasionally humans dive from "here" in "there," and come back "here" again, because we cannot live solely "here."

The dissolving experience is shown also in the following haiku by Basho, cited by Fromm (Fromm 1976, 4):

When I look carefully
 I see the *nazuna* blooming
 By the hedge!

Basho expresses the moment of satisfaction by only looking carefully to see the small flower, and refrains from plucking it and taking it home, which is an act predominantly of "having."

If Max lets the wild things eat him up, he can no longer return. This is a perilous moment. In a "dissolving experience," there is a moment of looking into an abyss that lies between the two worlds, "here" and "there," a precarious point of no return. In the picture book, however, we can rest assured because the protagonist invariably returns so that we can experience a story that is structurally a there-and-back tale. Max never remains over there, like an alcoholic or a drug addict. Such a valuable picture book that lets you experience the double structure of the world.

Curiously, a waning crescent moon is visible through the window when Max is sent to bed, but after he returned from "where the wild things are," the moon is full, even though that much time could not have passed by. Possibly a riddle by Sendak? To me it looks like a softly spoken message from Sendak, "You think 'here' is your real world but who knows, what if it is 'there' that is real?"

These two picture books imply dissolving experiences in which humans feel as if the boundaries between themselves and others melted away. *Little Blue and Little Yellow* suggests that the wall between oneself and others who are fellow beings dissolves. *Where the Wild Things Are* represents a dissolving experience of a vertical direction in which a human fuses with heaven and earth, a transcendent, or nature. The "being mode of existence," or "to be *oned* to the world," as rephrased by Fromm, is described in two dimensions. The joy of being with others/world is depicted in these precious picture books.

There are many folktales and stories that show the pitfall of "having." I will not go into detail but just give a few examples. A Japanese picture book *How Much Land Does a Man Need* (Yanagawa, 2006) based on a Russian folktale by Tolstoy L.N. (1828-1910) depicts a foolish farmer who, defeated by the insatiable desire, loses his life. The farmer who believed he would be

happier the more he owns ended up needing only a patch of land for a hole to be buried in.

The Hedgehog and the Gold Coin (Orlov, 2003) based on a Russian tale by Orlov V.N. (1930-1999) was published in Japan as a picture book. An elderly hedgehog finds a gold coin on a path in a forest. He tries to buy things he will need for winter hibernation with the gold coin, but all the animals the hedgehog encounters give him what he wants, such as dried mushrooms, for free. No longer needing the gold coin, the hedgehog puts it back where he found it. The story tells us about the world of reciprocity where people live helping each other. This picture book suggests that we can obtain what we need without money if we have personal relationships. There are numerous picture books that allude to potential danger, limitations, and contradictions of "having."

The coinage of the term "environmental education" has allowed us to recognize an area of education for teaching and learning the relationship between the man and nature. The emergence of idea-based EE in and after 1970 led to the discovery of pre-existing EE (Imamura, 2017). Although buried in everyday life and hard to be aware of, there are moments of teaching and learning how to coexist with nature. There is practice of passing on the knowledge of the relationship with nature accumulated over the long history of mankind from one generation to the next.

Likewise, we have gained the term "environmental picture book." Picture books allow us to be aware of pre-existing EE in specific forms. It is not only small children but adults, too, who learn, through the media such as these picture books and folktales, the human-nature relationship and how to live, as a human, with nature and fellow beings.

Since "being" is indescribable in words and communicable only by sharing experiences as Fromm put it, sharing picture book experiences between parents and children can be understood as an important practice of EE. That is to say, the "steps toward being" are found in pre-existing environmental picture books. A new type of EE begins where parents read these books to and with the children.

As demonstrated above, we have realized, by looking into pre-existing EE, in particular pre-existing environmental picture books, that there is, not just the mechanical-technical, idea-based EE mainly practiced in schools, but also the practice of "learning and teaching" the mankind's knowledge of coexistence with nature that has been passed on over generations. It is the academic role of EE to keep pointing out that this practice is meaningful.

V. CONCLUSION

This paper aimed to apply Fromm's theories of social character and insights into the human being as

the basis of the educational philosophy of EE. Development of a social character with predominance of the "being mode of existence" is not feasible because of the unpredictability of the outcome. An attempt to contrive another educational philosophy and to build another theory of EE that promises viability would be fruitless. The tale of EE is a failed project.

Having said that, we can see how Fromm's theories of society and his view of man can update and enrich our visions of education we have in hand. Likewise, now that we look at environmental picture books as a framework, we can recognize the "being mode" more realistically.

With this all in mind, lastly, let me answer the question at the beginning.

"We cannot expect mechanical-technical EE to build a sustainable society."

What then is the significance of EE? Recognizing the pre-existing EE, rediscovering the lost "teaching and learning" practice, is the new significance of EE. "Look! Here are traces of EE!" To point this out again and again wherever possible, to sustain the long practice of teaching and learning for humans to live in harmony with nature -- that is the important role of the environmental education.

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Factors Leading to School Dropout in Bangladesh: An Empirical Approach

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Abstract- Developing country like Bangladesh, it is an unarguable fact that the development of a nation is dependent on education of its people. The purpose of this research is to determine the fundamental issues that act behind high dropouts in primary and followed by secondary level in Bangladesh. The study also has found some interventions that may play a critical role in reducing school dropout. Data had been collected from the industrial area of Tongi named Tetul-tola Slum, Kolabagan, Tongi, and secondary data had been collected from published Govt. Research papers. The data demonstrate that not only the economic background, parents unwillingness to education, parents education level, the distance of a school, gender discrimination, low quality of education, security problem of girls in school, teachers' behavior, even students' unwillingness to go to school and earning money in early age are the key reasons of children drop out from school. However, girls are more likely to drop school than boys.

Keywords: school dropout rate, enrollment rate, primary level, secondary level, evening school, student counseling.

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Keywords: school dropout rate, enrollment rate, primary level, secondary level, evening school, student counseling.

I. INTRODUCTION

As we all know, education is considered the backbone of a nation. Without education, a country cannot be developed. With a large percentage of uneducated nations, developing countries like Bangladesh will not be participated in the race of development. It has been broadly accepted that education is the important aspect of poverty alleviation. Education plays essential role of development and has an unforgettable impact on all aspects of human life. It is investment for human life and countries' economy.

Though Bangladesh has gone steps forward in basic education, primary and secondary education, still dropout rate is high.

Students' dropout from school is a problem for Bangladesh. Drop out children from school means discontinuing schooling without completing a high school education or equivalent certificate exam. Commonly, dropout determines the situation when a student departure from school before completing their high school education. Child dropout of school means

leaving school without completing their early education as well as their secondary education. And it is a common scenario faced by almost all of the developing countries and even in developed countries in the world. This rate is remarkably high in developing countries. A large number of students in developing countries are dropping out school by leading cause poverty.

II. LITERATURE REVIEW

There are many hidden causes behind school dropouts. People of Bangladesh will not be able to walk towards growth and prosperity without concentrate on education or without making sure of the full attendance of students in school.

In 2016, the school dropout rate in secondary level among girls was 42.19 percent, while the school dropout rate in the secondary level among boys was 33.80 percent, according to the report of the Bangladesh Bureau of Educational Information and Statistics. The enrollment of students in the secondary was 67.84 percent, in which girls were 73.10 percent and boys were 63.85 percent. The enrollment and the school dropout both are higher among girls than boys. It suggests that girls are more likely to drop school than boys. But the school dropout rate at the primary level was 19.2 percent in 2016 which is less than the secondary level. In 2015 school dropout rate in secondary level among girls was 45.9 percent, while the school dropout rate in secondary level among boys was 33.72 percent. That is, girls are more likely to drop school than boys.

It is an unbelievable fact that more than one million students dropted out each year in the United States. Even in the USA, almost seven thousand students left their school in a day.

III. OBJECTIVES

The main objectives of the study are as follows:

- Compare the rate of enrollment and dropout.
- Find out the socio-economic contribution to school dropout.
- Girls are more likely to drop out than boys.
- School dropout is higher in secondary schools than in primary schools.
- Specify the measures that the Bangladeshi government has been taken to enhance school enrollment.

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- f. Identify whether there is any positive association between government incentives and school enrollment.
- g. Recommended policy to overcome this problem.

IV. RESEARCH METHODOLOGY AND DATA SOURCE

Both qualitative and quantitative analyses have been done to achieve the objectives.

The data have been collected from primary and secondary sources. The educational statistics published, are the main sources of the secondary data used in this study. Some data has been collected from the industrial area of Tongi named Tetul-tola Slum, Kolabagan, Tongi to get insight into the matter of school dropout.

In the first stage, the population (adolescents) have been divided in two strata, one continues school stratum another is the dropout school stratum. From the dropout stratum, some boys are, and girls are randomly selected and interviewed. Several FGDs with both parents and students have been conducted to find out the determinants of school dropout.

There are some common reasons and surprising causes of school dropout come out through the interviews and FGDs, such as- Poverty, Distance of school, Security problem of girls in school, Teacher's performance and quality of education, Teacher's behaviors towards students, Gender discrimination, Parents unwillingness to education and parents

education level, Even student's unwillingness to go to school, Earning money in early age.

V. DATA ANALYSIS

In Bangladesh, the education system has been separated into three levels. The first, five years of schooling are called the primary level includes ranging from grade 1 to grade 5. The second level starts from 6 to grade 10. And the completion of secondary, the Secondary Board Examination S.S.C. (School Secondary Certificate). The third level of public education ends at grade twelve with the exam named HSC (Higher Secondary Certificate). The Compulsory Primary Education Act was been passed in 1990, which legalizes primary education free and compulsory for all children up to Grade 5. The Government of Bangladesh has been recognized education as a means of reducing poverty and improving the quality of life. The Government of Bangladesh, with assistance from development partners, has made positive steps towards fulfilling children's rights to education, according to the Education for All and Millennium Development Goals. As a result, the country has been made significant progress towards achieving universal primary education and gender parity in schools. After quite a satisfactory achievement of Millennium Development Goals (MDG), the government of Bangladesh is planning its strategies for meeting Goal 4 of Sustainable Development Goals (SDG).

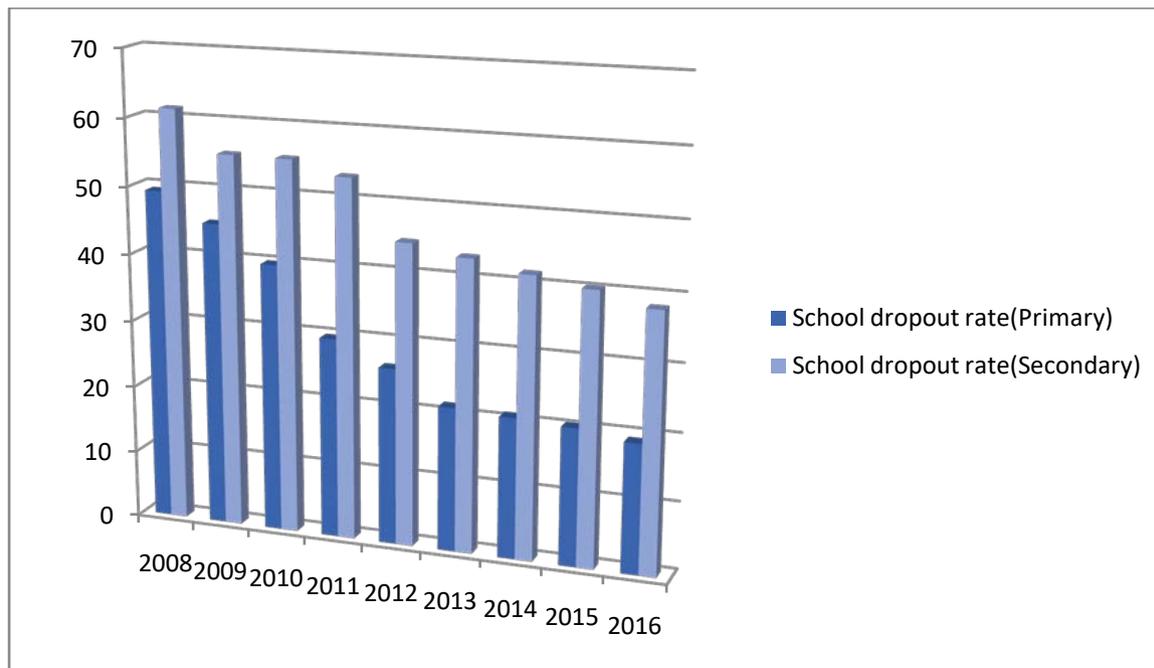


Figure 1: School (primary and secondary) dropout rate

a) *Girls are more likely to drop school than boys*

Though dropout is reducing it is still high for girls than boys. According to the report of the Bangladesh Bureau of Educational Information and Statistics, the school dropout is higher among girls than boys. In 2016, secondary level among girls school dropout rate was 42.19 percent among boys was 33.80

percent. Their mothers work as day labor. Both of them have to stay at home for cooking, doing household chores, and looking after their younger brothers and sisters. That is why they could not be able to continue their education and dropped school. This situation at both the primary and secondary levels.

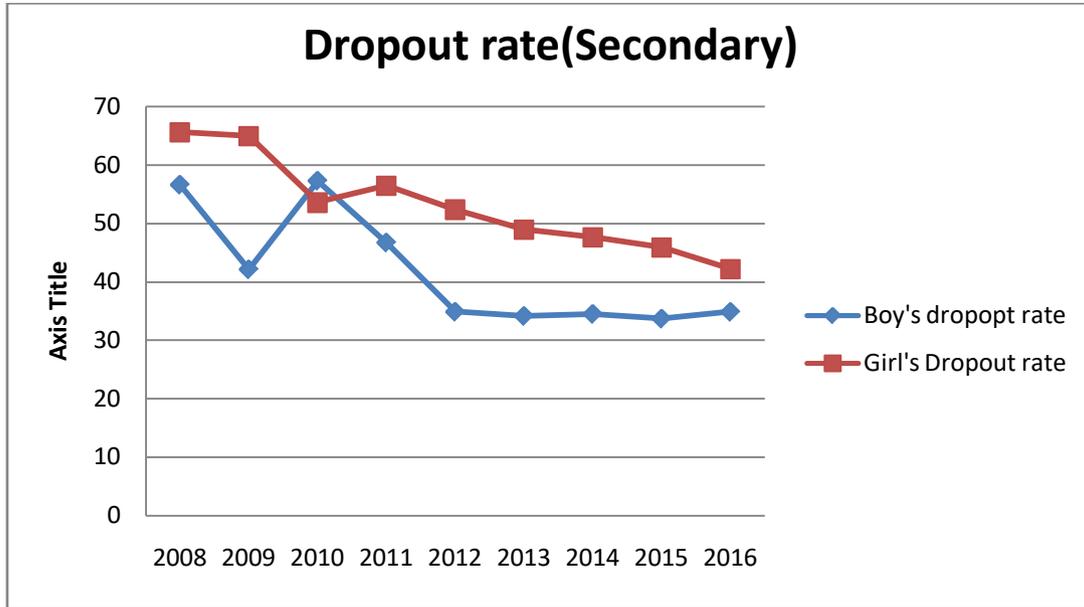


Figure 2: School (secondary) dropout rate

b) *Government incentives*

Since the 1990s, Bangladesh government have been trying to implement many incentives and opportunities for students to minimize dropout from school such as offering scholarships, Compulsory education by an act, Free Education, Establishing new school in remote places, a safety measure for girls,

distributing textbooks, subsidizing public transport for students. The best known is Food-for-Education in Bangladesh. The goals of these incentive programs are to remain students in school and to compensate families for the lost value of their children's labor. After taking Govt. incentive enrollment rate is increasing day by day.

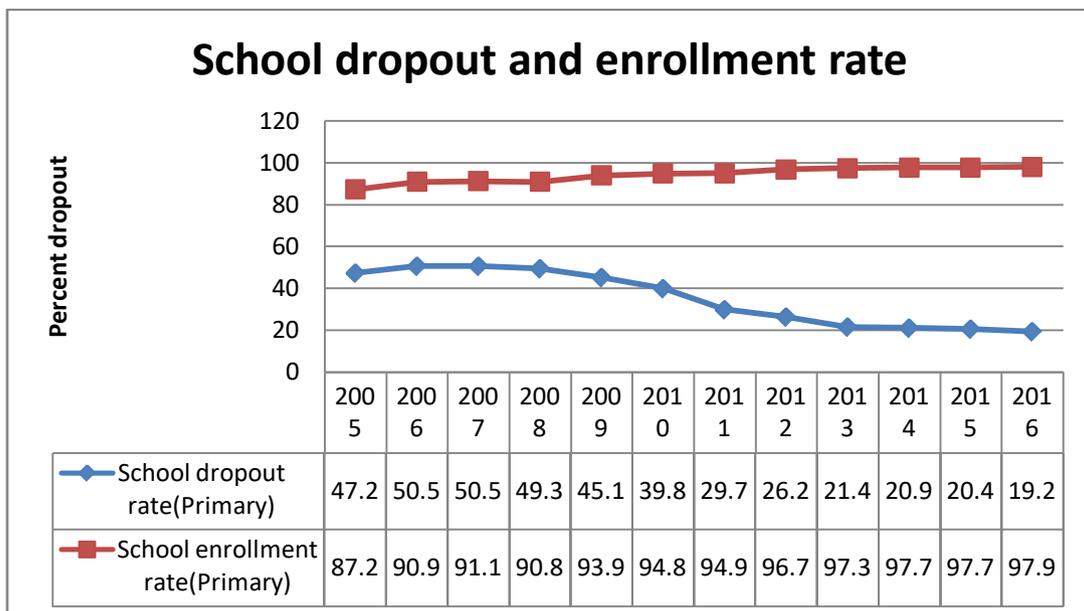


Figure 3: School dropout and enrollment rate

VI. FINDING

- a. To meet the Millennium Development Goal (MDG), which demanded to "Achieve Universal Primary Education," countries took initiatives for a higher enrollment rates in elementary schools while investing a significant amount of GDP for educational purposes. Quality education, which has become a buzzword since the targets of SDG, is quite impossible without connecting the curricula to real-life experiences.
- b. In Bangladesh, poverty is one of the main reasons for school dropout. Their economic condition keeps students away from school, and they cannot continue school. Sometimes it becomes too hard to survive, and there is no option of education.
- c. For different social issues, girls are more likely to drop out of school than boys, such as religious beliefs, early marriage, and household chores, look after younger brothers and sisters, especially when their mother is working outside the home.
- d. Location of school, lack of quality education, teacher's performance, and behaviors towards students and teachers' irregularity causes high school dropouts.
- e. Lack of quality education students are being dropped out. Teacher absenteeism and poor quality education is a frequent scenario in Bangladeshi primary level education scenario.
- f. Earning at an early age seems more profitable to both the students and parents. When a student becomes old enough to join the workforce, the parents take them out of school and make them join somewhere to earn. They do not feel interested in investing money or time for getting fruits in the future. Most of the parents of the working-class families emphasize an immediate income of their children.
- g. Lack of parental interest and engagement with schooling is often the case that parents cannot understand school-related work and hinder causes of the parents step behind from sending their daughters to school.
- h. Parents create gender discrimination and allow their sons to go to school than their daughters if they have to choose between sons and daughters in studying. Parents think that boys need more education than a girl for future livelihood.
- i. Sometimes students are unwilling to go to school. Their parents are also uneducated never told them to go to school. Both students and parents are uninterested to study.

VII. SUGGESTIONS AND RECOMMENDATION

To overcome the worse satiation of students' dropouts from school Govt. should take some counteractive measure, such as

- Government should ensure the attendance of teachers in schools and trained the teachers to compete with the global level of education.
- Community awareness seminar and counseling of students' and parents' could be initiated to develop an interest towards the study and not to avoid school.
- Government could take the initiative to establish evening school or night school for the working children who are want to continue study but have to work as well.

VIII. LIMITATIONS

This study also faces some limitations, such as time constraints and budget constraints. Due to these constraints, this study cannot include all the dropout cases of the slum. Only a few of them are randomly selected and not able to conduct empirical testing.

IX. FUTURE RESEARCH

Comparative analysis of causes of students' dropouts in rural and urban areas and comparative analysis among girls and boys students dropout can have been conducted. Elaborate research on evening school or night school programs for the working children can have been conducted from a Bangladeshi perspective.

X. CONCLUSION

Education always plays a significant role in all aspects of human life. Education is a backbone of a nation and a key element of economic development. It is an essential investment for the human as well as economic development. The purpose of this research is to discern the identical issues that work behind high enrollment in primary schools and higher secondary schools followed by uncontrolled dropouts in Bangladesh. When a student struggles with poverty as well as drops out from school, society will neglect them. Even they are being sometimes neglected by their home. As a result, they become a burden to society and could not become the human capital for the country.

Dropout is not due to a single reason, there are different reasons for this problem. Girls are more likely to drop out from the school than boys. The data demonstrate that not the economic background only, parents' education, location, school mechanisms, gender discrimination, even student's unwillingness to go to school, earning money at in early age are the key reasons children drop out from school. And many other factors are liable for school dropout. So policy makers have to give more attention to these dropout situations because, with a large percentage of uneducated nations, a country's economic development cannot be been accelerated.

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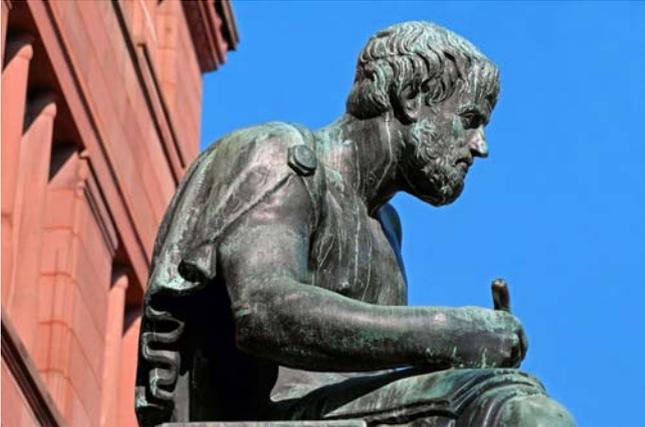
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The primary objective is to recognize the leaders in research and scientific fields of the current era with a global perspective and to create a channel between them and other researchers for better exposure and knowledge sharing. Members are most eminent scientists, engineers, and technologists from all across the world. Fellows are elected for life through a peer review process on the basis of excellence in the respective domain. There is no limit on the number of new nominations made in any year. Each year, the Open Association of Research Society elect up to 12 new Fellow Members.



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Credibility

Reputation

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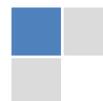
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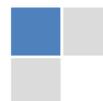
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4. Manuscript to be submitted must include keywords, an abstract, a paper title, co-author(s) names and details (email address, name, phone number, and institution), figures and illustrations in vector format including appropriate captions, tables, including titles and footnotes, a conclusion, results, acknowledgments and references.
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- Findings
- Writings
- Diagrams
- Graphs
- Illustrations
- Lectures



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- Graphic representations
- Computer programs
- Electronic material
- Any other original work

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2. Drafting the paper and revising it critically regarding important academic content.
3. Final approval of the version of the paper to be published.

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The corresponding author should mention the name and complete details of all co-authors during submission and in manuscript. We support addition, rearrangement, manipulation, and deletions in authors list till the early view publication of the journal. We expect that corresponding author will notify all co-authors of submission. We follow COPE guidelines for changes in authorship.

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Acknowledgments

Contributors to the research other than authors credited should be mentioned in Acknowledgments. The source of funding for the research can be included. Suppliers of resources may be mentioned along with their addresses.

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The following is the official style and template developed for publication of a research paper. Authors are not required to follow this style during the submission of the paper. It is just for reference purposes.



Manuscript Style Instruction (Optional)

- Microsoft Word Document Setting Instructions.
- Font type of all text should be Swis721 Lt BT.
- Page size: 8.27" x 11", left margin: 0.65, right margin: 0.65, bottom margin: 0.75.
- Paper title should be in one column of font size 24.
- Author name in font size of 11 in one column.
- Abstract: font size 9 with the word "Abstract" in bold italics.
- Main text: font size 10 with two justified columns.
- Two columns with equal column width of 3.38 and spacing of 0.2.
- First character must be three lines drop-capped.
- The paragraph before spacing of 1 pt and after of 0 pt.
- Line spacing of 1 pt.
- Large images must be in one column.
- The names of first main headings (Heading 1) must be in Roman font, capital letters, and font size of 10.
- The names of second main headings (Heading 2) must not include numbers and must be in italics with a font size of 10.

Structure and Format of Manuscript

The recommended size of an original research paper is under 15,000 words and review papers under 7,000 words. Research articles should be less than 10,000 words. Research papers are usually longer than review papers. Review papers are reports of significant research (typically less than 7,000 words, including tables, figures, and references)

A research paper must include:

- a) A title which should be relevant to the theme of the paper.
- b) A summary, known as an abstract (less than 150 words), containing the major results and conclusions.
- c) Up to 10 keywords that precisely identify the paper's subject, purpose, and focus.
- d) An introduction, giving fundamental background objectives.
- e) Resources and techniques with sufficient complete experimental details (wherever possible by reference) to permit repetition, sources of information must be given, and numerical methods must be specified by reference.
- f) Results which should be presented concisely by well-designed tables and figures.
- g) Suitable statistical data should also be given.
- h) All data must have been gathered with attention to numerical detail in the planning stage.

Design has been recognized to be essential to experiments for a considerable time, and the editor has decided that any paper that appears not to have adequate numerical treatments of the data will be returned unrefereed.

- i) Discussion should cover implications and consequences and not just recapitulate the results; conclusions should also be summarized.
- j) There should be brief acknowledgments.
- k) There ought to be references in the conventional format. Global Journals recommends APA format.

Authors should carefully consider the preparation of papers to ensure that they communicate effectively. Papers are much more likely to be accepted if they are carefully designed and laid out, contain few or no errors, are summarizing, and follow instructions. They will also be published with much fewer delays than those that require much technical and editorial correction.

The Editorial Board reserves the right to make literary corrections and suggestions to improve brevity.



FORMAT STRUCTURE

It is necessary that authors take care in submitting a manuscript that is written in simple language and adheres to published guidelines.

All manuscripts submitted to Global Journals should include:

Title

The title page must carry an informative title that reflects the content, a running title (less than 45 characters together with spaces), names of the authors and co-authors, and the place(s) where the work was carried out.

Author details

The full postal address of any related author(s) must be specified.

Abstract

The abstract is the foundation of the research paper. It should be clear and concise and must contain the objective of the paper and inferences drawn. It is advised to not include big mathematical equations or complicated jargon.

Many researchers searching for information online will use search engines such as Google, Yahoo or others. By optimizing your paper for search engines, you will amplify the chance of someone finding it. In turn, this will make it more likely to be viewed and cited in further works. Global Journals has compiled these guidelines to facilitate you to maximize the web-friendliness of the most public part of your paper.

Keywords

A major lynchpin of research work for the writing of research papers is the keyword search, which one will employ to find both library and internet resources. Up to eleven keywords or very brief phrases have to be given to help data retrieval, mining, and indexing.

One must be persistent and creative in using keywords. An effective keyword search requires a strategy: planning of a list of possible keywords and phrases to try.

Choice of the main keywords is the first tool of writing a research paper. Research paper writing is an art. Keyword search should be as strategic as possible.

One should start brainstorming lists of potential keywords before even beginning searching. Think about the most important concepts related to research work. Ask, "What words would a source have to include to be truly valuable in a research paper?" Then consider synonyms for the important words.

It may take the discovery of only one important paper to steer in the right keyword direction because, in most databases, the keywords under which a research paper is abstracted are listed with the paper.

Numerical Methods

Numerical methods used should be transparent and, where appropriate, supported by references.

Abbreviations

Authors must list all the abbreviations used in the paper at the end of the paper or in a separate table before using them.

Formulas and equations

Authors are advised to submit any mathematical equation using either MathJax, KaTeX, or LaTeX, or in a very high-quality image.

Tables, Figures, and Figure Legends

Tables: Tables should be cautiously designed, uncrowned, and include only essential data. Each must have an Arabic number, e.g., Table 4, a self-explanatory caption, and be on a separate sheet. Authors must submit tables in an editable format and not as images. References to these tables (if any) must be mentioned accurately.



Figures

Figures are supposed to be submitted as separate files. Always include a citation in the text for each figure using Arabic numbers, e.g., Fig. 4. Artwork must be submitted online in vector electronic form or by emailing it.

PREPARATION OF ELETRONIC FIGURES FOR PUBLICATION

Although low-quality images are sufficient for review purposes, print publication requires high-quality images to prevent the final product being blurred or fuzzy. Submit (possibly by e-mail) EPS (line art) or TIFF (halftone/ photographs) files only. MS PowerPoint and Word Graphics are unsuitable for printed pictures. Avoid using pixel-oriented software. Scans (TIFF only) should have a resolution of at least 350 dpi (halftone) or 700 to 1100 dpi (line drawings). Please give the data for figures in black and white or submit a Color Work Agreement form. EPS files must be saved with fonts embedded (and with a TIFF preview, if possible).

For scanned images, the scanning resolution at final image size ought to be as follows to ensure good reproduction: line art: >650 dpi; halftones (including gel photographs): >350 dpi; figures containing both halftone and line images: >650 dpi.

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1. Choosing the topic: In most cases, the topic is selected by the interests of the author, but it can also be suggested by the guides. You can have several topics, and then judge which you are most comfortable with. This may be done by asking several questions of yourself, like "Will I be able to carry out a search in this area? Will I find all necessary resources to accomplish the search? Will I be able to find all information in this field area?" If the answer to this type of question is "yes," then you ought to choose that topic. In most cases, you may have to conduct surveys and visit several places. Also, you might have to do a lot of work to find all the rises and falls of the various data on that subject. Sometimes, detailed information plays a vital role, instead of short information. Evaluators are human: The first thing to remember is that evaluators are also human beings. They are not only meant for rejecting a paper. They are here to evaluate your paper. So present your best aspect.

2. Think like evaluators: If you are in confusion or getting demotivated because your paper may not be accepted by the evaluators, then think, and try to evaluate your paper like an evaluator. Try to understand what an evaluator wants in your research paper, and you will automatically have your answer. Make blueprints of paper: The outline is the plan or framework that will help you to arrange your thoughts. It will make your paper logical. But remember that all points of your outline must be related to the topic you have chosen.

3. Ask your guides: If you are having any difficulty with your research, then do not hesitate to share your difficulty with your guide (if you have one). They will surely help you out and resolve your doubts. If you can't clarify what exactly you require for your work, then ask your supervisor to help you with an alternative. He or she might also provide you with a list of essential readings.

4. Use of computer is recommended: As you are doing research in the field of homan social science then this point is quite obvious. Use right software: Always use good quality software packages. If you are not capable of judging good software, then you can lose the quality of your paper unknowingly. There are various programs available to help you which you can get through the internet.

5. Use the internet for help: An excellent start for your paper is using Google. It is a wondrous search engine, where you can have your doubts resolved. You may also read some answers for the frequent question of how to write your research paper or find a model research paper. You can download books from the internet. If you have all the required books, place importance on reading, selecting, and analyzing the specified information. Then sketch out your research paper. Use big pictures: You may use encyclopedias like Wikipedia to get pictures with the best resolution. At Global Journals, you should strictly follow [here](#).



6. Bookmarks are useful: When you read any book or magazine, you generally use bookmarks, right? It is a good habit which helps to not lose your continuity. You should always use bookmarks while searching on the internet also, which will make your search easier.

7. Revise what you wrote: When you write anything, always read it, summarize it, and then finalize it.

8. Make every effort: Make every effort to mention what you are going to write in your paper. That means always have a good start. Try to mention everything in the introduction—what is the need for a particular research paper. Polish your work with good writing skills and always give an evaluator what he wants. Make backups: When you are going to do any important thing like making a research paper, you should always have backup copies of it either on your computer or on paper. This protects you from losing any portion of your important data.

9. Produce good diagrams of your own: Always try to include good charts or diagrams in your paper to improve quality. Using several unnecessary diagrams will degrade the quality of your paper by creating a hodgepodge. So always try to include diagrams which were made by you to improve the readability of your paper. Use of direct quotes: When you do research relevant to literature, history, or current affairs, then use of quotes becomes essential, but if the study is relevant to science, use of quotes is not preferable.

10. Use proper verb tense: Use proper verb tenses in your paper. Use past tense to present those events that have happened. Use present tense to indicate events that are going on. Use future tense to indicate events that will happen in the future. Use of wrong tenses will confuse the evaluator. Avoid sentences that are incomplete.

11. Pick a good study spot: Always try to pick a spot for your research which is quiet. Not every spot is good for studying.

12. Know what you know: Always try to know what you know by making objectives, otherwise you will be confused and unable to achieve your target.

13. Use good grammar: Always use good grammar and words that will have a positive impact on the evaluator; use of good vocabulary does not mean using tough words which the evaluator has to find in a dictionary. Do not fragment sentences. Eliminate one-word sentences. Do not ever use a big word when a smaller one would suffice.

Verbs have to be in agreement with their subjects. In a research paper, do not start sentences with conjunctions or finish them with prepositions. When writing formally, it is advisable to never split an infinitive because someone will (wrongly) complain. Avoid clichés like a disease. Always shun irritating alliteration. Use language which is simple and straightforward. Put together a neat summary.

14. Arrangement of information: Each section of the main body should start with an opening sentence, and there should be a changeover at the end of the section. Give only valid and powerful arguments for your topic. You may also maintain your arguments with records.

15. Never start at the last minute: Always allow enough time for research work. Leaving everything to the last minute will degrade your paper and spoil your work.

16. Multitasking in research is not good: Doing several things at the same time is a bad habit in the case of research activity. Research is an area where everything has a particular time slot. Divide your research work into parts, and do a particular part in a particular time slot.

17. Never copy others' work: Never copy others' work and give it your name because if the evaluator has seen it anywhere, you will be in trouble. Take proper rest and food: No matter how many hours you spend on your research activity, if you are not taking care of your health, then all your efforts will have been in vain. For quality research, take proper rest and food.

18. Go to seminars: Attend seminars if the topic is relevant to your research area. Utilize all your resources. Refresh your mind after intervals: Try to give your mind a rest by listening to soft music or sleeping in intervals. This will also improve your memory. Acquire colleagues: Always try to acquire colleagues. No matter how sharp you are, if you acquire colleagues, they can give you ideas which will be helpful to your research.

19. Think technically: Always think technically. If anything happens, search for its reasons, benefits, and demerits. Think and then print: When you go to print your paper, check that tables are not split, headings are not detached from their descriptions, and page sequence is maintained.



20. Adding unnecessary information: Do not add unnecessary information like "I have used MS Excel to draw graphs." Irrelevant and inappropriate material is superfluous. Foreign terminology and phrases are not apropos. One should never take a broad view. Analogy is like feathers on a snake. Use words properly, regardless of how others use them. Remove quotations. Puns are for kids, not grunt readers. Never oversimplify: When adding material to your research paper, never go for oversimplification; this will definitely irritate the evaluator. Be specific. Never use rhythmic redundancies. Contractions shouldn't be used in a research paper. Comparisons are as terrible as clichés. Give up ampersands, abbreviations, and so on. Remove commas that are not necessary. Parenthetical words should be between brackets or commas. Understatement is always the best way to put forward earth-shaking thoughts. Give a detailed literary review.

21. Report concluded results: Use concluded results. From raw data, filter the results, and then conclude your studies based on measurements and observations taken. An appropriate number of decimal places should be used. Parenthetical remarks are prohibited here. Proofread carefully at the final stage. At the end, give an outline to your arguments. Spot perspectives of further study of the subject. Justify your conclusion at the bottom sufficiently, which will probably include examples.

22. Upon conclusion: Once you have concluded your research, the next most important step is to present your findings. Presentation is extremely important as it is the definite medium through which your research is going to be in print for the rest of the crowd. Care should be taken to categorize your thoughts well and present them in a logical and neat manner. A good quality research paper format is essential because it serves to highlight your research paper and bring to light all necessary aspects of your research.

INFORMAL GUIDELINES OF RESEARCH PAPER WRITING

Key points to remember:

- Submit all work in its final form.
- Write your paper in the form which is presented in the guidelines using the template.
- Please note the criteria peer reviewers will use for grading the final paper.

Final points:

One purpose of organizing a research paper is to let people interpret your efforts selectively. The journal requires the following sections, submitted in the order listed, with each section starting on a new page:

The introduction: This will be compiled from reference matter and reflect the design processes or outline of basis that directed you to make a study. As you carry out the process of study, the method and process section will be constructed like that. The results segment will show related statistics in nearly sequential order and direct reviewers to similar intellectual paths throughout the data that you gathered to carry out your study.

The discussion section:

This will provide understanding of the data and projections as to the implications of the results. The use of good quality references throughout the paper will give the effort trustworthiness by representing an alertness to prior workings.

Writing a research paper is not an easy job, no matter how trouble-free the actual research or concept. Practice, excellent preparation, and controlled record-keeping are the only means to make straightforward progression.

General style:

Specific editorial column necessities for compliance of a manuscript will always take over from directions in these general guidelines.

To make a paper clear: Adhere to recommended page limits.



Mistakes to avoid:

- Insertion of a title at the foot of a page with subsequent text on the next page.
- Separating a table, chart, or figure—confine each to a single page.
- Submitting a manuscript with pages out of sequence.
- In every section of your document, use standard writing style, including articles ("a" and "the").
- Keep paying attention to the topic of the paper.
- Use paragraphs to split each significant point (excluding the abstract).
- Align the primary line of each section.
- Present your points in sound order.
- Use present tense to report well-accepted matters.
- Use past tense to describe specific results.
- Do not use familiar wording; don't address the reviewer directly. Don't use slang or superlatives.
- Avoid use of extra pictures—include only those figures essential to presenting results.

Title page:

Choose a revealing title. It should be short and include the name(s) and address(es) of all authors. It should not have acronyms or abbreviations or exceed two printed lines.

Abstract: This summary should be two hundred words or less. It should clearly and briefly explain the key findings reported in the manuscript and must have precise statistics. It should not have acronyms or abbreviations. It should be logical in itself. Do not cite references at this point.

An abstract is a brief, distinct paragraph summary of finished work or work in development. In a minute or less, a reviewer can be taught the foundation behind the study, common approaches to the problem, relevant results, and significant conclusions or new questions.

Write your summary when your paper is completed because how can you write the summary of anything which is not yet written? Wealth of terminology is very essential in abstract. Use comprehensive sentences, and do not sacrifice readability for brevity; you can maintain it succinctly by phrasing sentences so that they provide more than a lone rationale. The author can at this moment go straight to shortening the outcome. Sum up the study with the subsequent elements in any summary. Try to limit the initial two items to no more than one line each.

Reason for writing the article—theory, overall issue, purpose.

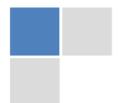
- Fundamental goal.
- To-the-point depiction of the research.
- Consequences, including definite statistics—if the consequences are quantitative in nature, account for this; results of any numerical analysis should be reported. Significant conclusions or questions that emerge from the research.

Approach:

- Single section and succinct.
- An outline of the job done is always written in past tense.
- Concentrate on shortening results—limit background information to a verdict or two.
- Exact spelling, clarity of sentences and phrases, and appropriate reporting of quantities (proper units, important statistics) are just as significant in an abstract as they are anywhere else.

Introduction:

The introduction should "introduce" the manuscript. The reviewer should be presented with sufficient background information to be capable of comprehending and calculating the purpose of your study without having to refer to other works. The basis for the study should be offered. Give the most important references, but avoid making a comprehensive appraisal of the topic. Describe the problem visibly. If the problem is not acknowledged in a logical, reasonable way, the reviewer will give no attention to your results. Speak in common terms about techniques used to explain the problem, if needed, but do not present any particulars about the protocols here.



The following approach can create a valuable beginning:

- Explain the value (significance) of the study.
- Defend the model—why did you employ this particular system or method? What is its compensation? Remark upon its appropriateness from an abstract point of view as well as pointing out sensible reasons for using it.
- Present a justification. State your particular theory(-ies) or aim(s), and describe the logic that led you to choose them.
- Briefly explain the study's tentative purpose and how it meets the declared objectives.

Approach:

Use past tense except for when referring to recognized facts. After all, the manuscript will be submitted after the entire job is done. Sort out your thoughts; manufacture one key point for every section. If you make the four points listed above, you will need at least four paragraphs. Present surrounding information only when it is necessary to support a situation. The reviewer does not desire to read everything you know about a topic. Shape the theory specifically—do not take a broad view.

As always, give awareness to spelling, simplicity, and correctness of sentences and phrases.

Procedures (methods and materials):

This part is supposed to be the easiest to carve if you have good skills. A soundly written procedures segment allows a capable scientist to replicate your results. Present precise information about your supplies. The suppliers and clarity of reagents can be helpful bits of information. Present methods in sequential order, but linked methodologies can be grouped as a segment. Be concise when relating the protocols. Attempt to give the least amount of information that would permit another capable scientist to replicate your outcome, but be cautious that vital information is integrated. The use of subheadings is suggested and ought to be synchronized with the results section.

When a technique is used that has been well-described in another section, mention the specific item describing the way, but draw the basic principle while stating the situation. The purpose is to show all particular resources and broad procedures so that another person may use some or all of the methods in one more study or referee the scientific value of your work. It is not to be a step-by-step report of the whole thing you did, nor is a methods section a set of orders.

Materials:

Materials may be reported in part of a section or else they may be recognized along with your measures.

Methods:

- Report the method and not the particulars of each process that engaged the same methodology.
- Describe the method entirely.
- To be succinct, present methods under headings dedicated to specific dealings or groups of measures.
- Simplify—detail how procedures were completed, not how they were performed on a particular day.
- If well-known procedures were used, account for the procedure by name, possibly with a reference, and that's all.

Approach:

It is embarrassing to use vigorous voice when documenting methods without using first person, which would focus the reviewer's interest on the researcher rather than the job. As a result, when writing up the methods, most authors use third person passive voice.

Use standard style in this and every other part of the paper—avoid familiar lists, and use full sentences.

What to keep away from:

- Resources and methods are not a set of information.
- Skip all descriptive information and surroundings—save it for the argument.
- Leave out information that is immaterial to a third party.



Results:

The principle of a results segment is to present and demonstrate your conclusion. Create this part as entirely objective details of the outcome, and save all understanding for the discussion.

The page length of this segment is set by the sum and types of data to be reported. Use statistics and tables, if suitable, to present consequences most efficiently.

You must clearly differentiate material which would usually be incorporated in a study editorial from any unprocessed data or additional appendix matter that would not be available. In fact, such matters should not be submitted at all except if requested by the instructor.

Content:

- Sum up your conclusions in text and demonstrate them, if suitable, with figures and tables.
- In the manuscript, explain each of your consequences, and point the reader to remarks that are most appropriate.
- Present a background, such as by describing the question that was addressed by creation of an exacting study.
- Explain results of control experiments and give remarks that are not accessible in a prescribed figure or table, if appropriate.
- Examine your data, then prepare the analyzed (transformed) data in the form of a figure (graph), table, or manuscript.

What to stay away from:

- Do not discuss or infer your outcome, report surrounding information, or try to explain anything.
- Do not include raw data or intermediate calculations in a research manuscript.
- Do not present similar data more than once.
- A manuscript should complement any figures or tables, not duplicate information.
- Never confuse figures with tables—there is a difference.

Approach:

As always, use past tense when you submit your results, and put the whole thing in a reasonable order.

Put figures and tables, appropriately numbered, in order at the end of the report.

If you desire, you may place your figures and tables properly within the text of your results section.

Figures and tables:

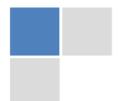
If you put figures and tables at the end of some details, make certain that they are visibly distinguished from any attached appendix materials, such as raw facts. Whatever the position, each table must be titled, numbered one after the other, and include a heading. All figures and tables must be divided from the text.

Discussion:

The discussion is expected to be the trickiest segment to write. A lot of papers submitted to the journal are discarded based on problems with the discussion. There is no rule for how long an argument should be.

Position your understanding of the outcome visibly to lead the reviewer through your conclusions, and then finish the paper with a summing up of the implications of the study. The purpose here is to offer an understanding of your results and support all of your conclusions, using facts from your research and generally accepted information, if suitable. The implication of results should be fully described.

Infer your data in the conversation in suitable depth. This means that when you clarify an observable fact, you must explain mechanisms that may account for the observation. If your results vary from your prospect, make clear why that may have happened. If your results agree, then explain the theory that the proof supported. It is never suitable to just state that the data approved the prospect, and let it drop at that. Make a decision as to whether each premise is supported or discarded or if you cannot make a conclusion with assurance. Do not just dismiss a study or part of a study as "uncertain."



Research papers are not acknowledged if the work is imperfect. Draw what conclusions you can based upon the results that you have, and take care of the study as a finished work.

- You may propose future guidelines, such as how an experiment might be personalized to accomplish a new idea.
- Give details of all of your remarks as much as possible, focusing on mechanisms.
- Make a decision as to whether the tentative design sufficiently addressed the theory and whether or not it was correctly restricted. Try to present substitute explanations if they are sensible alternatives.
- One piece of research will not counter an overall question, so maintain the large picture in mind. Where do you go next? The best studies unlock new avenues of study. What questions remain?
- Recommendations for detailed papers will offer supplementary suggestions.

Approach:

When you refer to information, differentiate data generated by your own studies from other available information. Present work done by specific persons (including you) in past tense.

Describe generally acknowledged facts and main beliefs in present tense.

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	A-B	C-D	E-F
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<i>Introduction</i>	Containing all background details with clear goal and appropriate details, flow specification, no grammar and spelling mistake, well organized sentence and paragraph, reference cited	Unclear and confusing data, appropriate format, grammar and spelling errors with unorganized matter	Out of place depth and content, hazy format
<i>Methods and Procedures</i>	Clear and to the point with well arranged paragraph, precision and accuracy of facts and figures, well organized subheads	Difficult to comprehend with embarrassed text, too much explanation but completed	Incorrect and unorganized structure with hazy meaning
<i>Result</i>	Well organized, Clear and specific, Correct units with precision, correct data, well structuring of paragraph, no grammar and spelling mistake	Complete and embarrassed text, difficult to comprehend	Irregular format with wrong facts and figures
<i>Discussion</i>	Well organized, meaningful specification, sound conclusion, logical and concise explanation, highly structured paragraph reference cited	Wordy, unclear conclusion, spurious	Conclusion is not cited, unorganized, difficult to comprehend
<i>References</i>	Complete and correct format, well organized	Beside the point, Incomplete	Wrong format and structuring



INDEX

A

Accentuates · 32
Adequate · 28
Admiration · 24, 31, 34
Ambiguous · 41
Amplitude · 20, 22
Anxiety · 25, 27, 28,
Argumentation, · 21

C

Coherent · 23, 25
Conceived · 22
Confrontation · 32
Consistent · 14
Consolidation · 1
Constant · 1, 23, 25
Contemplation · 23, 29
Continuum · 12

D

Desirable · 39, 43
Determinable · 41
Discursive · 21, 22, 29

E

Emergence · 21, 44
Emphasis · 40
Enrolled · 12, 13, 26, 27
Escalated · 40
Explicitly · 22
Exploratory · 11

F

Fascinating · 43
Feasible · 37, 40, 44

G

Graded · 10, 15
Gratifying · 15

I

Impactful · 10
Inevitably · 21, 22, 24,
Integrated · 11, 14
Interpretation, · 10
Intrinsically · 23

P

Persistent · 13
Predictable · 14, 41
Predominant · 24, 39, 40, 41
Privileged, · 23

R

Relevant · 14, 23, 24
Resistant · 20
Revealed · 19, 27, 30, 33
Reversible · 40

T

Tendency · 24, 38, 39
Terminology · 1

V

Variant · 32
Vocabulary · 22, 28, 29, 34

W

Willingness · 31

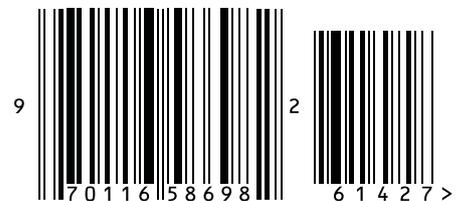


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