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Infusing Digital Literacy in Authentic Academic Digital Practices of English Language Teaching at Universities

Ifan Iskandar
Universitas Negeri Jakarta, Indonesia
Email: ifaniskandar@unj.ac.id

Sri Sumarni
Universitas Negeri Jakarta, Indonesia
Email: sri.sumarni@unj.ac.id

Ratna Dewanti
Universitas Negeri Jakarta, Indonesia
Email: rdewanti@unj.ac.id

Muhammad Nur Ashar Asnur
Universitas Negeri Jakarta, Indonesia
Email: ashar@unj.ac.id

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Abstract
Digital literacy is a critical element of multiliteracy framework required to thrive in digital era and perceived as cross-curricular competencies, yet it is not adequately addressed in English language teaching. This paper explores the traits of the authentic academic digital practices in the course outlines of English language skills conducive for digital literacy development, examines the extent to which digital literacy are infused in the authentic academic digital practices of the English courses and proposes the procedure of infusing digital literacy in the authentic academic digital practices of English language teaching. The study employs content analysis to address the data—the traits of authentic academic digital practices in fifty-five course outlines of English language skills subjects from six English Language Education and English Literature Study Programs in Jakarta and West Java. The findings recognize the traits of authentic academic digital practices in the digital academic products, such as the answers to open-/closed-ended questions, essays, presentation slides, papers, videos, podcasts, recorded audio-visual presentations, and reports diversely used across the courses. These digital academic products are used merely as the media in which English is used; only English proficiency is highlighted. The underpinning digital competencies to create the media, the media creation process and the media as digital academic products are not sufficiently addressed and measured. Digital literacy is infused in the authentic academic digital practices of English language teaching through five stages of identifying the components of digital literacies and the authentic academic digital practices and products, analysing the descriptors of digital literacies components pertaining to authentic academic digital practices and products, integrating the descriptors of digital literacies into learning

outcomes, embedding digital literacies into academic products, employing authentic academic digital practices in the learning process, and assessing digital literacies as cross-curricular competencies.

Keywords: Digital literacy; cross-curricular competencies; authentic academic digital practices; digital academic products; English language teaching; course outlines; learning outcomes

Introduction

Digital literacy is increasingly becoming a vital factor in most aspects of human life including English language education. It has received much attention over the last two decades and has been investigated from various angles. The investigators mostly direct their courses to three areas—the digital literacy level and perception, the use of digital literacy to enhance certain competences, and the use of certain strategies to develop digital literacy. The studies of digital literacy mastery and perception focus on pre-service teachers' digital literacy (Akayoğlu et.al., 2020; Liza & Andriyanti, 2020), EFL teachers' digital literacy (Cote & Milliner, 2018; Allen & Berggren, 2016) and EFL teachers' and students' perception on digital literacy (Özden, 2018; Ata & Yıldırım, 2019; Dashtestani, & Hojatpanah, 2020; Mudra, 2020; Aydin & Erol, 2021; Peled, 2021).

The other two areas are variously explored. Research on the use of digital literacy covers students' digital literacy level and the use of digital technologies for language learning in Australia and Japan (Son, et.al., 2017), digital literacy effect on English language mastery (Al-Qallaf & Al-Mutairi, 2016), digital literacy to develop EAL learners' intercultural sensitivity (Galante, 2015), the effect of digital literacy on the quality of language use and task fulfillment (Kang & Kim, 2021; Spires et.al., 2018), and the role of digital literacy in English for Academic Purposes (Roche, 2017; Abduh, A., & Basri, M., 2020). The third research area addresses storytelling activities to support digital literacy development (Yoon, 2014; Chan et.al., 2017; Maureen et.al., 2020), project-based learning to boost students' digital literacy (Nanni, 2020; Abduh, A., & Dunakhir, S., 2020; Rosmaladewi, R., & Abduh, A., 2017) and text mining in the processes of reading and writing in a foreign language to support digital literacy (Barcellos et.al., 2020).

Within the next few years, digital literacy is likely to become an important component in education and find its environment to thrive during and after pandemic Covid-19. A study by Unicef (2020) entitled strengthening digital learning across Indonesia proves this by recommending encouraging digital learning, employing learner-adjusted teaching methods, developing digital learning materials, building digital monitoring instruments of teaching and learning, regularly assessing and enhance learning material quality, and creating online safety mechanisms. These recommended issues implying the unrealised conditions indicate the increasing vital role of digital literacy and its potential ground for further research. Despite the interest of exploring digital literacy, no one to the best of our knowledge has studied the development of digital literacy in English language education through authentic academic digital practices (AADP).

This issue differs from that of issues in the previous areas of studies on digital literacy. It does not deal with the exploration of digital literacy mastery among EFL students and teachers nor with its use to improve English language proficiency in the context of English Language Teaching (ELT). It neither pertains the employment of EFL teaching and learning activities. It is like a delicate blend of the three areas as it empowers the EFL learner and teacher's digital literacy through authentic academic practices in the process of ELT to produce academic texts as the products. This eventually is expected to enhance both the digital literacy and English proficiency of both learners and teachers.

The aim of our study is, first, to further broaden current knowledge of digital literacy by exploring the traits of the authentic academic digital practices in the course outlines of English language skills conducive for digital literacy development. This is to provide the evidence on the inevitable use of AADP in English language learning syllabuses. The second purpose is to examine the extent to which digital literacy are infused in the authentic academic digital practices of the English courses. This show the accommodation span of the digital literacy in the English language learning syllabuses. The last is to propose the stages of infusing digital literacy in the authentic academic digital practices of English language teaching.

The coverage of digital literacy

Digital literacy (DL) has been considerably investigated and will probably remain alluring for researchers across disciplines. In the last fifty years, the studies of the key terms pertinent to digital literacy derived from the WoS and Scopus databases add up to 52,903 issues (Martínez-Bravo et.al., 2020). Of the total issues, 23,866 are taken from WoS and that of 9,608 from Scopus. There are eleven key terms associated to digital literacy and they are information literacy, new literacies, digital literacy, digital skills, media literacy, technology literacy, digital competence, ICT skills, ICT competence, multiliteracies, and ICT literacy. These key terms give the hints to the realm of digital literacy.

In popular language and scholarly academic literature, digital literacy is interchangeably used with digital skills, digital fluency, digital capabilities, digital competencies, digital intelligence, and so on (Brown, 2017a). The word Digital literacy was popularized by Gilster in 1997 (Rosado & Bélisle, 2006; Khosrow-Pour, 2018) who viewed it as the ability to access information in numerous formats from networked computer resources of and use it. Digital literacy is perceived in various angles as abilities that an individual needs to live, learn and work in a digital society (JISC, 2017); to create, navigate, manipulate and evaluate information using digital technologies (McAndrews and TechDis, (2014); and to use digital technologies confidently, critically, and creatively to succeeed in learning, work, leisure, and social inclusion (Karsenti et.al., 2020).

To explore the detailed elements of digital literacy, multiple digital literacy frameworks fruitfully need to be analysed. There are at least 100 digital literacy frameworks (Brown, 2017b & Pegrum, 2019). Orientated to exercising ethical citizenship and developing technological skills, digital competency is analysed into 12 dimensions of digital resources for learning, information literacy, collaboration, communication, content production, inclusion and diverse needs, personal and professional empowerment, problem solving, critical thinking, and innovation and creativity (Karsenti et.al., 2020). Digital literacy is broadly taken into critical and practical understandings through three different models of Universal Literacy critically focussing on the coping with the increasing immersion of digital technologies, Creative Literacy concerning creative production and consumption and Literacy Across Disciplines dealing with the infusion of digital literacy into the curriculum across disciplines (Brown, 2017b). In more elaborate way, digital literacy is broken down into seven elements of media literacy, communication and collaboration, career and identity management, ICT literacy, learning skills, digital scholarship, and information literacy (JISC, 2018). DL frameworks have also been the issue of interest UNESCO in their DL frameworks for teachers or in its original source known as ICT Competency Framework for Teachers encapsulates DL as the ability to use ICT to locate, evaluate, use, and create information and it is developed in three consecutive stages of technology literacy/knowledge acquisition, knowledge deepening, and knowledge creation (UNESCO, 2018). The earlier version of DL components are more

specifically presented into accessing, managing, evaluating, integrating, creating, and communicating information (Karpati, 2011).

In this paper the standard dimensions of Digital literacy is used by synthesizing the above frameworks into three dimensions of mental, instrumental and sociocultural. Mental aspect as an integral part of digital literacy is undeniably justified when it comes to coping with fact, opinion, and fiction. Information and communication technology present and provide any kinds of information in terms of topics and quality because individuals with the ICT access can creatively receive and transmit information as asserted here "… *Misinformation – and disinformation – breeds as easily as creativity in the fever-swamp of personal publishing… It will take all the critical skills users can muster to separate truth from fiction."* (Gilster, 1997, p.xii). The issue of fighting misinformation is made explicit in the identification of three kinds of misinformation—fake social media accounts or identity, fake chat messages or content, and fake reviews or responses (Susman-Peña, 2020) implying the cognitive competence emphasis.

Cognitive competence refers to the cognitive processes that comprise (i) creative thinking, which includes various creative thinking styles, such as legislative, global, and local thinking styles; and (ii) critical thinking, which includes reasoning, making inferences, self-reflection, and coordination of multiple views (Sun & Hui, 2006). Critical and creative thinking, the mental domain, are the core of Cognitive competence (Sun & Hui, 2012) which are ascertained as self-directed cognitive skills for adults to acquire and profit from in order to construct knowledge, complete task, solve problem, and make decision. This domain of DL doesn't transform and remain the same as the Gilster' propositions; critical skills required to separate fact from fiction, ability to evaluate information and wariness as the key component of DL (Gilster, 1997) and these are adduced in the phrases of "*digital literacy as context-dependent critical thinking... and to enjoy emerging mind-amplifying tools*" (Rosado, & Bélisle, 2006). In this sense, DL is discerned as the ability to demonstrate critical and creative thinking when locating, evaluating, creating, and communicating information.

Instrumental dimension of digital literacy is inextricably infused in all definitions of DL through the words *numerous formats*, *networked computer resources*, *digital technology*, and *digital resources*. The earlier UNESCO version of the first DL development stage used to be known as technology literacy emphasizing the computer-related literacy focusing on the acquisition of sets of rules and technical capabilities which is then replaced by knowledge acquisition (UNESCO, 2011 & 2018). Instrumental aspect of digital literacy is comprehensively presented in five major areas, they are 1) understanding digital world of computing system and connection, connectivity, hardware, operating systems and software; 2) online experience comprising understanding internet, working with eb, emailing, clouds and online communication; 3) productivity programs made up of understanding application, creating personal documents with Microsoft Word, managing and calculating data with Microsoft Excel, creating presentations with Microsoft PowerPoint, storing and retrieving data with Microsoft Access; 4) digital security and privacy including protecting computer and data from harm and safeguarding privacy; 5) expanding computer to other devices, digital cameras and photography and working with music and video (Wempen, 2015). Here, digital literacy is recognized as the capability to effectively engage in ICT technology when locating, evaluating, creating, and communicating information.

Emotional and sociocultural dimension of digital literacy finds its confirmation when it comes to the information communication aspect—communication necessarily encompasses sender, ideas, encoding, communication channel, receiver, decoding, and feedback. Mental, emotional and sociocultural competences are intertwined with this aspect though personal and

social are more highlighted. The phrases of digital society (JISC, 2017), social inclusion and ethical citizenship (Karsenti et.al., 2020; Abduh, A., Basri, M., Ramly, R., & Rosmaladewi, R., 2021), communicating information (Karpati, 2011), and fake social media (Susman-Peña, 2020) contribute to this dimension. In more direct sense, the notion of "the awareness of other people" when defining DL (Rosado, & Bélisle, 2006) concludes the emergence of this sociocultural importance. In addition, the word literacy itself is social-bound; "…literacy is inherently a social phenomenon" (Belshaw, 2014) and "all literacy practices are integrated within the social context" (Rosado, & Bélisle, 2006). Thus, digital literacy is realized as the ability to locate, evaluate, create, and communicate information in appropriate social, cultural, and moral contexts. The three dimensions can be seen below in figure 1.

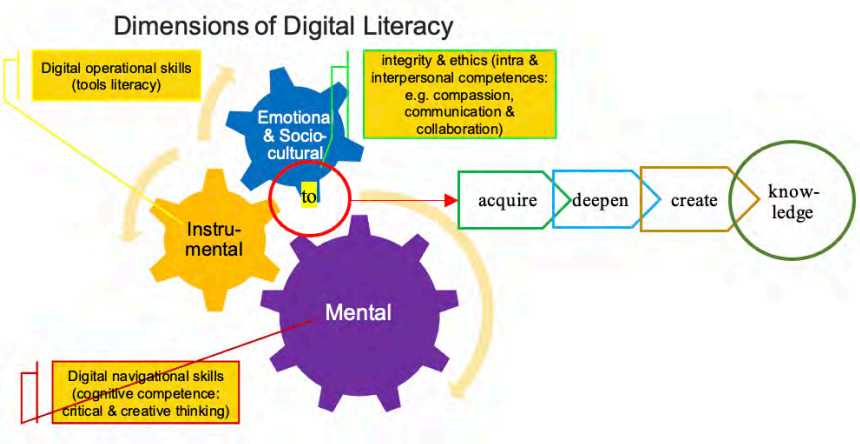

Figure 1. The three dimensions of digital literacy

Authentic academic digital practices in English language teaching

Integrating digital literacy in education is no longer a privilege. Two-year pandemic C-19 leave us with no option but employing ICT technology to the most to move the wheel of education—to allow teaching and learning to take place. Digital literacy in language teaching and learning have been diversely practiced in terms of the use (Alakrash & Razak, 2021); the need (Hafner, 2015); increasing the power of language (Pegrum, 2019); the integration in EFL classroom (Alfia et.al., 2020); and tracing digital literacy practices (Wu, 2020). The ubiquitous use of DL is affirmed by the emergence of digital natives (Prensky, 2001) and viral terms of work from home (WFH), online learning, and webinar entail the successful use of digital literacy. Yet, the intriguing questions arise; whether the teachers and students are digitally literate; the digital natives are of digital literacy; digital literacy is used and developed as it is supposed to be?

Education authorities in half of Europe countries recommend promoting digital literacy in initial teacher education (European Commission/EACEA/Eurydice, 2019). This signifies the importance of DL in one side and the less mastery of teacher candidates (including digital natives) on the other side. Research has proven that those born in the digital age do not make them digital natives—they are not competent nor confident with digital technology (European Commission/EACEA/Eurydice, 2019); ICT technology is used more for fun in leisure time than that of educational purposes (OECED, 2015); ICT for enhancing quality education and learning outcome is scarcely identified (Fairlie, 2016; Escueta, 2017; Hutubessy, E. D., Triswantini, E., & Asnur, M. N. A., 2021). This situation is assumptuously relevant to the recommendation of giving less attention to the adoption of new digital devices, but more to meaningful tasks which scrutinize

authentic academic digital practices (AADP) to be infused in the curriculum and to recontextualize emerging digital practices in an academic setting (Payton, 2012).

Digital literacy in this sense is neither realized by providing the most cutting-edge digital devices in the EFL classrooms, nor by creating ICT-related courses. Providing courses of ICT hinders the advancement of academic skills and practices and restrict the exploration of the DL itself (Hinrichsen & Coombs, 2013). ICT courses lose the authentic use of the digital technology. Consequently, DL should be taken as cross-curricular competencies and thus, is infused in all English language courses by authentically and optimally employing the digital devices and internet access to produce digital authentic academic products or texts through authentic academic digital practices of English language teaching.

Digital Literacy is a cross-curricular competency in the sense that the skills are not fixed to one subject and not context-bound (Gouvernement du Québec: Ministère de l'Éducation, 2001). As a cross-curricular competence, DL is generic and real in nature as it oversteps diverse subject areas and is required by students, teachers, and all education staff members to live their real-life situations. Here is the essential basis for authenticity in AADP. While digital means using or relating to a computer and other electronic equipment and internet (online Cambridge dictionary, 2021), academic practice refers to the process of completing your academic work independently, honestly and in an appropriate academic style, using good referencing and acknowledging all of your sources (University of Kent, 2012) and to professional work to create and communicate knowledge and the processes and managing of teaching, learning, and researching (University of Warwick, 2021).

Throughout the paper we use the term Authentic Academic Digital Practices (AADP) to refer to the process of completing real academic work independently and honestly adhering to the academic conventions by making use of multimedia technology to generate real digital academic products (DAP) like essays, presentations, reports, papers, podcasts, infographics, and thesis/dissertation. The traits of AADP are traceable in the digital academic products, course learning outcomes and the related scoring rubrics. These parts entail the deliberate plan of infusing digital literacy as intended outcome and the outcomes are consequently measured.

Methodology

The study employs content analysis to explore the traits of the authentic academic digital practices in the English proficiency course outlines and examine the breadth of digital literacy infusion in the authentic academic digital practices of the English courses. Library research is employed to prepare the ground for interpreting the results of the content analysis to propose the scheme of infusing digital literacy in the authentic academic digital practices in the English language teaching. The data are the traits of authentic academic digital practices in fifty-five course outlines of English language skills subjects from six English Language Education and English Literature Study Programs in Jakarta and West Java. The course outlines were collected in 2020 and 2021. The digital academic products in the course outlines are applied to collect the data which are analysed by identifying the DAP, categorizing them, and relating them to the course learning outcomes for the relevance.

Findings

Authentic academic digital practices in English foreign language courses

Authentic Academic Digital Practices are recognized in digital academic products in all fifty-five courses of six Study Programs of English Language Education and English Literature in

Jakarta and West Java. The digital academic products that are expected to be generated by students as stipulated in the course outlines are answers to open-ended questions, closed-ended questions, mixed open-and closed-ended questions, essays, presentation slides (including the presentation), papers and reports. Interviews with 17 lecturers demonstrate that the DAPs develop during the pandemic C-19 in terms of kinds, four new DAPs—recorded presentations, videos, podcasts, and infographics—adding up to eight kinds in total. Table 1 below shows the identified DAPs in the course outlines.

Table 1. Digital Academic Products Identified in the EFL Courses

Univ	Courses/Subjects	Digital Academic Products									
		Answers*	Essays	Presentation	Papers &	Recorded	Videos	Podcasts	Infographics	Miscellany**	Relevance
A	1. Listening Comprehension 1	√									√
	2. Listening Comprehension 2	√						√			
	3. Listening Comprehension 3	√						√			
B	4. Listening for General Communication	√									√
	5. Listening for Academic Purposes	√						√			√
C	6. Comprehensive Listening	√						√			√
D	7. Listening for General Communication 1	√									√
		√									
	8. Listening for General Communication 2	√						√			
		√						√			
	9. Listening for Professional Context										
	10. Listening for Academic Purpose										
E	11. Listening for General Communication	√						√			√
		√						√			
	12. Listening for Professional Context	√						√			
	13. Listening for Academic Purpose										
A	14. Responsive Speaking	√		√							√
	15. Argumentative Speaking			√		√	√				
B	16. Speaking 1	√		√							√
	17. Speaking 2	√		√		√	√				
	18. Speaking 3			√		√	√				
C	19. Basic Speaking	√									√
	20. Intermediate Speaking			√		√	√				
	21. Advanced Speaking			√		√	√				
D	22. Speaking 1	√									√
	23. Speaking 2	√		√		√	√				
	24. Speaking 3			√							
E	25. Speaking for Social Discourse	√		√							√
	26. Public Speaking	√		√							
	27. Speaking for Academic Purpose			√		√	√				

F	28. Speaking 1	√		√		√	√				√
	29. Speaking 2	√		√							
	30. Speaking 3	√		√		√	√				
	31. Speaking 4			√		√	√				
A	32. Genre-Based Reading	√			√						√
	33. Analytical Reading	√	√		√						
B	34. Reading for Academic Purposes	√	√		√						√
C	35. Academic Reading	√	√		√						√
D	36. Intensive Reading	√	√		√						√
E	37. Academic Writing and Reading	√	√		√						√
F	38. Extensive Reading	√	√		√						√
A	39. Paragraph Writing		√								√
	40. Essay Writing		√								
	41. Argumentative Writing		√	√	√	√					
B	42. Writing 1		√								√
	43. Writing 2		√	√	√	√					
	44. Writing 3		√	√	√	√					
C	45. Basic Writing		√								√
	46. Intermediate Writing		√	√	√	√					
	47. Advanced Writing		√	√	√	√					
D	48. Writing 1		√								√
	49. Writing 2		√								
	50. Writing 3		√	√	√	√					
	51. Writing 4		√	√	√	√					
	52. Academic Writing		√	√	√	√					
E	53. Writing in Professional Context		√	√	√	√					√
	54. Writing for Academic Purposes		√	√	√	√					
F	55. Academic Reading		√	√	√	√					√
A-E	Total	31	23	27	18	21	10	9	0	0	55

* Answers to *open-ended questions* or *closed-ended questions* or *mixed open- and closed-ended*
** (…)

It is identified that of the fifty-five courses, thirty-one DAP of answers to questions are applied in listening, speaking and reading classes, but not in writing. Twenty-three essays are found in reading and writing classes, twenty seven presentation slides as well as the presentation are pinpointed in speaking and writing classes, and eighteen papers and reports are diagnosed in reading and writing classes. The other four DAPs which are not incorporated in the course outlines are employed by the fifteen lecturers and they are ten recorded presentations in speaking classes and nine videos in listening classes with no indicator of using podcasts and infographics.

Digital academic products are the bases of indicating that AADP takes place in EFL classes. With the three development stages of digital literacy—acquiring, deepening, and creating knowledge—the production processes of all DAPs require AADP like using search engine to access, manage, create, and communicate the information or knowledge from internet-connected digital devices. Academic works (DAPs) are the real outputs expected from learners to ensure that knowledge generation is accomplished and in so doing, the authentic use of ICT technology occurs.

The DAPs in the course outlines are relevant to the nature of the related EFL courses. Answers to questions are the most frequently identified DAP (in 31 courses) and meet the essence

of listening, speaking and reading classes as this product is applicable to demonstrate understanding and comprehension. This product is not found in the writing courses as it is not in line with any kind of text in writing, except filling in certain forms. Essays are a typical output of writing classes and is feasibly adopted in reading classes. Presentation slides and presentation are common in speaking classes and relevant in writing classes for example reporting the project or solution to a certain problem. Papers and reports are usually assigned at the mid and end of semester in reading and writing classes. Recorded presentations, videos, podcasts, and infographics are recently practised during the pandemic replacing classroom presentation, discussions and performances.

The extent of digital literacy infusion in the authentic academic digital practices

Digital academic products are obviously found in EFL courses and relevant to the nature of the courses as shown in table 1. However, that doesn't necessarily guarantee the effective AADP application. The infusion of digital literacy in the course outlines is noticeable in the academic works, course learning outcomes (CLO) and the sub-CLOs, and the scoring rubrics of a course. This means that the identified DAPs in the fifty-five courses are evident for the AADP.

There is no indication in the course outlines that AADP is well planned, applied, and assessed. There is no identification and explicit provision of mental, instrumental and emotional-sociocultural dimensions in the course learning outcomes and sub-course learning outcomes of the EFL course outlines. The hints of infusing instrumental dimension of digital literacy, such as *World Wide Web (WWW) navigation skill* to access information as the acquiring stage, *computer storage devices skill* to manage information as the deepening stage, and *words processing skill* and *electronic presentation skill* to create and communicate information as the creating stage which are obviously applied to produce academic works are not discernible. The digital literacy as one of the cross-curricular competences is neither present in the CLO and sub-CLO and nor in scoring rubrics of the course .

The DAPs as the first indicators to delve into the occurrences of authentic academic digital practices guide us to go to the digital literacy in AADP. Answers to questions, essays, and papers and reports facilitate students to expand their instrumental dimension skills of DL, for instance: *World Wide Web (WWW) navigation skills, computer storage devices, network knowledge, file management and windows explorer skills, and computer security knowledge* noticeably used to acquire and deepen the required knowledge. Other instrumental aspect, like *words processing skill, spreadsheets skill, e-mail management skills, network knowledge, educational copyright , file management and windows explorer skills, computer security knowledge* are commonly engaged to create the knowledge. The DAPs of recorded presentations, videos, podcasts and infographics share similar instrumental ICT skills development in the stages of acquiring and deepening and the skills of *downloading software from web, installing software in computer, electronic presentation skills, video conferencing skills, web site design skills, scanner knowledge, digital cameras knowledge, network knowledge,* and *educational copyright* are exploited in the creating stage.

These skills of the instrumental dimension to produce the target DAPs are effectively flourishing digital literacy only when the mental and emotional-sociocultural dimensions are equitably employed in sync. The data in the course outlines prove that AADP is not purposefully infused in CLOs and sub-CLOs of the courses and not strategically applied as a part of measured intended outcomes in the assessment. DAPs are simply used for academic skills and English proficiency and the content and this suggests the tendency for the product-oriented assessment.

This is endorsed with the absence of the scoring rubrics for assessing learning process. DAPs miss the potential role to establish other cross-cultural competences such as 21st century skills of critical thinking, creative thinking, computation logic, collaboration, communication, and compassion and civic responsibility.

Infusing digital literacy in the authentic academic digital practices

The analyses of the EFL course outlines indicate that digital literacy has not been essentially infused despite the observable inclusion of digital academic products. Digital literacy is infused in the authentic academic digital practices of English language teaching through five stages. First, identify the components of digital literacies and the authentic academic digital practices and products. Second, analyse the descriptors of digital literacies components pertaining to authentic academic digital practices and products. Third, integrate the descriptors of digital literacies into learning outcomes. Fourth, embed digital literacies into academic products. Fifth, employ authentic academic digital practices in the learning process, and assess digital literacies as cross-curricular competencies. Stage one and two are presented in table 2 below.

Table 2. The identification of digital literacy and authentic academic digital practices

	Digital Literacy Components	Digital Literacy Intended Outcome (the ability to …)	Authentic Academic Digital Practices: Digital Academic Product/Texts	Authentic Academic Digital Practices: Learning Experience	Instructions (Bloom's Digital Taxonomy)	Digital Literacy Descriptors
Digital Literacy (DL)	Stage 1: Knowledge Acquisition					
	accessing information	identify information sources, retrieve information, and collect information	1. Written Answers 2. Essays 3. PPt Slides 4. Video 5. Podcast 6. Infographics 7. Recorded 8. Presentations 9. Papers 10. Reports 11. …	Student-Centred Learning: 1. Project-Based Learning; 2. Case-Based Learning; 3. Inquiry-Based Learning; 4. …	1) Remembering (Copying, Defining, Finding, etc); 2) Understanding (Annotating, Tweeting Associating, etc); 3) Applying (Acting out; Articulate, Reenact) 4) Analyzing (Breaking Down, Correlating, Deconstructing, etc.) 5) Evaluating (Arguing & Debating, Validating, Testing, etc); 6) Creating (Composing, Devising, Podcasting, etc.)	*1. accessing information: : identifying information sources including collecting and retrieving information* *2. managing information: assessing the validity and authenticity of the information resources* *3. evaluating information making judgements about information adequacy, currency, usefulness, quality, relevance, or efficiency* *4. integrating information: interpreting and representing information using ICT tools requiring the ability to synthesize, summarize, compare, and contrast information from multiple sources—visual and verbal information like texts, charts, and images* *5. creating new knowledge: generating new information digitally by adapting, applying, designing, inventing, or authoring information* *6.communicating information: transmitting information faster, more persuasively, and to a wider audience and adapting and presenting the information properly in a variety of sociocultural contexts*
	managing information	organize and classify diverse information from an internet-based knowledge portal				
	Stage 2: Knowledge Deepening					
	evaluating information	make judgements about information adequacy, currency, usefulness, quality, relevance, reliability, and efficiency				
	integrating information	synthesize, summarize, compare, and contrast information from multiple sources using visual and verbal literacy to make texts, charts, and images contrasted and interrelated.				
	Stage 3: Knowledge Creation					
	creating information	generate new information digitally by adapting, applying, designing, inventing, or authoring information				
	communicating information	transmit information fast, persuasively, and to a wide audience using the most appropriate and relevant media in order to adapt and present information properly in a variety of sociocultural contexts.				

Digital Literacy → Academic Products/Texts → Descriptors of the Target Literacy

(the formulation of the outcome and descriptors are copied and compiled from various sources)

The identification of the key words is dealt with digital literacy and authentic academic digital practices. Digital literacy is analysed into the components and stages the descriptors. Authentic academic digital practices are dissected into digital academic products, learning

experience enabling optimal use of ICT, and instruction verbs of HOTS. Digital literacy operates in three stages, they are knowledge acquisition, knowledge deepening, and knowledge creation. Each stage is signified by two processes in sequence of accessing and managing information, evaluating and integrating information, and creating and communicating information. The intended learning outcomes of digital literacy are the synthesis of the mental, instrumental, and emotional-sociocultural dimensions presented as follows: 1) identify information sources, retrieve information, and collect information; 2) organize and classify diverse information from an internet-based knowledge portal; 3) make judgements about information adequacy, currency, usefulness, quality, relevance, reliability, and efficiency; 4) synthesize, summarize, compare, and contrast information from multiple sources using visual and verbal literacy to make texts, charts, and images contrasted and interrelated; 5) generate new information digitally by adapting, applying, designing, inventing, or authoring information; 6) transmit information fast, persuasively, and to a wide audience using the most appropriate and relevant media in order to adapt and present information properly in a variety of sociocultural contexts.

Authentic academic digital practices are recognized through digital academic products or works or texts, learning experience, and instruction verbs of Bloom's digital taxonomy. The DAPs are written answers, essays, PPt slides, video, podcast, infographics, recorded presentations, papers, and reports. These works are potentially added up to accommodate the rapid transformation of knowledge and technology. The learning experience is directed to student-centred approach which allow optimal use of ICT in EFL teaching and learning and they among others are Project-Based Learning, Case-Based Learning, and Inquiry-Based Learning. Other relevant methods are open to apply. The digital Bloom's taxonomy verbs are opted to assure that Higher Order Thinking Skills (HOTS) are maintained in AADP and the example of those verbs are remembering (copying, defining, finding), understanding (annotating, tweeting, associating), applying (acting out, articulate, reenact), analyzing (breaking down, correlating, deconstructing), evaluating (arguing & debating, validating, testing), and creating (composing, devising, podcasting). The infusion of digital literacy in authentic academic digital practices as a whole, is presented in figure 2 below.

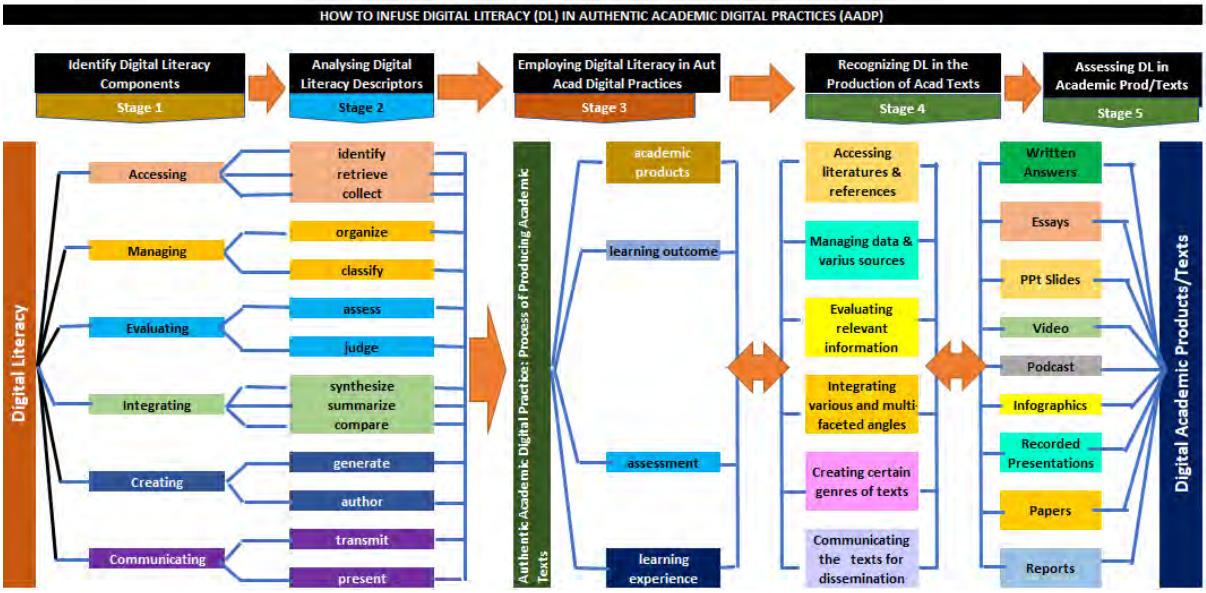

Figure 2. The stages of infusing digital literacy in authentic academic digital practices

Discussion

This study contends that digital literacy as the cross-curricular competence is not substantially integrated in course outlines of EFL teaching and learning. Although digital academic products are recognizable in the outlines, it is evident that the traits of digital literacy are not discernible in the course learning outcomes and sub-course learning outcomes and in the assessment strategies. Our findings are consistent with previous results that learners of digital natives are digitally literate in instrumental dimension of digital literacy, but less adept at evaluating and using content (Nanni 2020)—mental and sociocultural dimensions of digital literacy. This is the reason why learners need develop their digital literacy notably the component of information literacy (Hafner et.al., 2015) or the mental dimension of digital literacy.

The fact that digital literacy is not conscientiously infused in the EFL courses are probably associated with the learners born in digital era but are less digitally literate. Little evidence has been found that young generation are digitally capable (Judd, 2018). This is hardly distinguishable from the fact that digital technology is more frequently used for entertainment than for educational purposes (European Commission/EACEA/Eurydice, 2019; Bulman and Fairlie, 2016; Escueta 2017). That digital technology is restrictedly used for educational purposes justify the finding of this study that digital literacy is overlooked in EFL classroom.

Conclusion

Digital literacy in the EFL course outlines and interview is identified in the digital academic products of answers to questions, essays, presentation slides and presentation, papers and reports, recorded presentations and videos. Yet, this is not adequate to assure that authentic academic digital practices are applied. Indication that digital literacy is incorporated in the course outlines and sub-course outlines and in the assessment strategies is absent. Digital academic products are purely employed for academic skills which are subject-specific, while digital literacy which are subject-transcending as cross-curricular competence is discounted.

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