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Lessons from Self-Directed Learning Activities and Helping University Students Think Critically

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Abstract

This work presents the benefits of self-directed learning activities as tools for enhancing critical thinking of university students. Self-directed learning is best introduced to students during the transition period from high school to the university (Van et al., 2015), and then reinforced throughout the university years. Interestingly, self-directed learning does not end within the university walls-it does exist beyond those walls. Hence, there is the need to nurture it during the university years so it can blossom afterwards. Early introduction or reinforcement of self-directed learning to university students is crucial because it can help students get accustomed to being self-directed in their learning at the university and beyond, thereby developing their critical thinking skills. The benefit of self-directed learning activities includes critical thinking skills, cooperative learning skills, freedom in learning, ICT, research skills, and other useful skills.

Keywords: adult education, self-directed learning, university education, lifelong learning

1. Introduction

Throughout my years of being involved in language education, I have found that self-directed learning is one of the most researched methods of teaching and learning at the university level. This is simply due to the nature of adult education. In other words, self-directed learning prepares adult students for present and future learning demands. Do you remember the old proverb ‘give a man a fish and you feed him for a day; teach a man to fish and you feed him for a lifetime?’ This proverb aptly portrays the idea of self-directed learning. Through self-directed learning, students are empowered to go about their learning with or without the help of others and given necessary assistance to develop their potentials to become lifelong learners. To be more succinct, in self-directed learning, students are taught how to go about their learning with or without the help of others, find learning resources, seek for help, evaluate own learning, and be actively involved in both the teaching and learning process.

Self-directed learning is best introduced to students during the transition period from high school to the university (Van et al., 2015), and then reinforced and used throughout the university years and beyond. Self-directed learning activities can enhance the critical thinking of students; hence, educators have been advised that the inability to prepare students to be self-directed lifelong learners could mean a disservice to students (Abeles, 2010). This claim is based upon the idea that self-directed learning ability can help students become active learners, acquire knowledge in and outside the classroom, excel in their studies, and get prepared for future challenges. In other words, self-directed learning leads to academic success (Warburton & Volet, 2012). This viewpoint is supported by Slaughter (2009), who held that many self-directed learning research show a positive relationship between self-directed learning and academic achievement.

The adult education literature shows that adults have the potential to be both self-directed in their learning, and critical thinkers in their approach to learning, but some adults are more self-directed than others, and students don’t automatically acquire critical thinking skills or self-directed learning skills; they need some guidance. Hence, it has been argued that students’ self-direction in learning is an outcome of the interaction between their personal characteristics and the learning environment (Candy, 1991), and that students’ self-direction in learning is associated with their motivation (Regan, 2003) and teachers’ facilitation strategies (Grow, 1991). Differences in individual characteristics, motivation, resources, support (within and outside learning environment) and experience can even influence students’ self-directed learning ability. Therefore, adults who have low motivation or are retroactive or have poor self-efficacy can be helped to become more active and develop themselves to

become self-directed learners, and critical thinkers.

2. What Is Self-Directed Learning?

Self-directed learning is a "learning in which decision around what to learn, how to learn it, and how to decide if one has learned something well enough are all in the hands of learners" (Brookfield, 1986, p. 90). It involves the personal characteristics of learners (Brookfield, 1986) and the actual process of learning. Self-directed learning is suitable for adult learners due to the nature of adult learning and education. Adults can take more learning initiatives and responsibility than children do. In the 21st century, adults, especially young adults are challenged to catch up with the fast-changing world of knowledge to stay relevant. Part of staying relevant is to develop some core 21st century skills like self-directed learning skills and critical thinking skills.

2.1 Self-Directed Learning and Critical Thinking

The relationship between self-directed learning and critical thinking stems mainly from the nature of adults and adult education. As adults engage with the world, and strive for knowledge, there is always a need to ask questions and critically examine ideas and information. Examining ideas and information leads to deeper awareness and knowledge.

Critical thinking is one of the most crucial 21st century skills. It is an invaluable asset for adult learners. Critical thinking is a process of making sense of our external experiences through (cognitive) analysis of issues and available information. Making sense of our external experiences, implies taking responsibility and control. Control and responsibility are crucial aspects of critical thinking (Dewey, 1993). To buttress this, McPeck (1981) suggests that "perhaps the most notable characteristic of critical thought is that it involves a certain scepticism, argument, or suspension of assent, towards a given statement, established norm or mode of doing things. It involves analysis of premises, arguments, and evidence" (p. 6). This disposition helps us to comprehend complex issues and information associated with such issues and make connections between abstract thoughts and concrete things, so as to make good judgment or decision, or even ask informed questions.

Critical thinking is a skill that can be developed. It is not inert or a generalized ability or skill per se. Brookfield (1986) suggests a five-phase developmental model of critical thinking. They include a triggering event, an appraisal of the situation, an exploration to explain anomalies, development of alternative perspectives, and integration of perspectives. A triggering event could be a learning task, which is then appraised by students, and explored for explanation, which leads to perspectives or solutions, and finally, these perspectives or solutions are integrated. Obviously, this suggests the pertinent role of educators in guiding learners to acquire critical thinking skill. Ultimately, learners can be guided to acquire critical thinking skills through self-directed learning activities that demand such skills.

2.2 Research Supports the Use of Self-Directed Learning in University Instruction

Self-directed learning is invaluable in teaching post-secondary or university students. Hence, self-directed learning experts (Jansen, 2010) have encouraged its use at universities and other post-secondary institutions. Research in self-directed learning at universities have considered the following: views of language students and teachers on self-directed learning (Hewitt-Taylor, 2001), self-directed learning instructional model for English reading ability (Wichadee, 2011), problem-based learning strategy on self-directed learning , self-directed learning through group learning assignments (Warburton & Volet, 2012), self-directed learning in online learning, attitude towards self-directed learning (Demir et al., 2014), self-directed learning readiness of students (Murray & Jennie, 2010), and the importance of increased media use in promoting students self-directed learning and technology savvy (Gerhard & Masanori, 2006). All this research shows a positive relationship between self-directed learning and the academic success of students.

2.3 University Students' Background, Experiences, and Expectations Are Crucial

The diverse background of language students—previous experiences, individual learning characteristics, expectations, motivations, etcetera, places huge responsibility on facilitators and institutions of learning to familiarize with their students through activities like taking learning surveys, asking students to keep learning profiles, and holding periodic meetings with students. These interventions can promote trust, a sense of belonging, and enhance both teacher-student, and institution-student relations.

2.4 University Students' Motivations for Learning

Students' motivation is very critical for academic success. This is due to the fact that university programs are often demanding and requires students to complete certain number of credit units. Therefore, to progress successfully, students need to be motivated.

Students often have intrinsic or extrinsic motivations for learning. Those who have intrinsic motivations look more like self-directed learners because they engage in learning for its own sake. However, students who are not intrinsically motivated can be assisted to gain intrinsic motivations and become self-directed in learning too. In any case, both extrinsic and intrinsic motivations can both play complementary roles in students' academic success.

One good way to stimulate students' motivation is by getting to know our students. Activities like taking learning surveys and providing free consultations are good practices. Because they provide insight into students' learning experiences while creating a positive experience for learners. Therefore, students need a positive learning experience to stay motivated. As a matter of fact, motivations are the "driving engines" for their learning. Consequently, organizing activities capable of enhancing students learning experiences will strengthen their willingness to learn.

2.5 Helping University Students Become Self-Directed in Learning

It is important that students are assisted to become self-directed, and own their learning (Merriam, 2001). The role of teachers is ultimately that of facilitation of learning, and explicitly teaching students how to become self-directed learners. One way of doing this, is to teach learners how to find relevant learning resources, set and evaluate learning goals, work in groups and individually in a self-directed manner. Merely giving students lots of assignments or group and individual works, without first teaching students the importance and benefits of self-directed learning could amount to a disservice. Therefore, it is important that students know how this activity of self-directed learning is organized (Brookfield, 1986). This implies that students should be encouraged to take 'responsibility' for their learning. Personal responsibility is a major characteristic of self-directed leaners. Taking personal responsibility for one's own learning means that one is prepared to take charge of one's learning by deciding (with or without help) what resources one needs, how to get them, and how to progress with one's learning, and evaluate that learning, knowing if learning goals have been achieved or not. Unsurprisingly, there is a connection between the idea of personal responsibility and the way adults learn. Adults have the potential to be self-directed in learning (Knowles, 1975), which means that they can take responsibility for their learning. When adults take such responsibility, they reach 'learner self-direction.'

To elucidate further, the teaching-learning transaction involves all the processes that make learning possible. Therefore, it is crucial that teaching-learning transactions promote self-directed learning, and critical thinking, so students can develop as learners. A typical scenario in such learning transaction would be to encourage students to develop their potentials to 1) become self-directed learners, 2) skills in finding learning resources, 3) be involved in group and individual learning tasks, and 4) to be active in their learning, and evaluate their learning. Here, the lecturer or teacher becomes a "facilitator" of learning by actively facilitating the characteristics of the teaching-learning transaction to promote self-directed learning, and critical thinking skills of students.

Furthermore, it is particularly relevant to mention the factors within the 'social context of learning.' Factors within the social context of learning may include cultural and social norms, power dynamics, social relations, etcetera. These factors can impact positively or otherwise on students' self-direction in learning as well as the process of self-directed learning. This idea is supported by Merriam (2001) who argued that social structures and institutions can influence learning transactions of individuals. Similarly, Ellinger et al. (2002) held that an environment for learning can enhance individual performance. Therefore, it is crucial that teachers and institutions create and promote healthy, conducive, and empowering learning social contexts. These positive interventions would be invaluable for students' academic success. On the contrary, students' motivations for learning can be adversely affected by negative learning social environments, which are capable of causing increased attrition or withdrawal rate of students from learning programs.

In summary, the benefit of self-directed learning and critical thinking are well beyond the walls of learning institutions. ICT skills, being positive, being organized, being persistent, developing a liking for challenge, critical thinking skills, being aware of change and staying proactive are all characteristics of self-directed learners. Frankly speaking, not teaching students how to be self-directed in their learning and think critically is a great disservice to them, (Abeles, 2010) since we would be denying them the skills that they need to succeed in the 21st century. This century is aptly an information driven one; therefore, there is an urgent need for lifelong learning skills like self-directed learning and critical thinking skills.

2.6 Self-Directed Learning in My 'Introduction to English Communication' Class 101

I had taught some university students who were taking English conversation classes at a Conversation School (i.e., Eikaiwa school) where I worked sometime in the year 2021. It is note-worthy that these students had just finished their high school education and were taking some university courses in English, and hence, they wanted

to improve their English language skills. To begin the class for the term, I administered learning surveys and gathered students' profiles. After reviewing their submissions, and talking with individual students, we agreed that the self-directed learning method was going to be more helpful in reaching their academic goals for the semester.

The first step of introducing self-directed learning was to organize a seminar where self-directed learning was introduced. Students were encouraged to ask questions, work with their classmates, or alone depending on the learning activities, and individual needs. Learning activities included group and individual projects, and assignments. The goals of these learning activities were predetermined, namely, to help students improve their self-directed learning and critical thinking skills. Students were expected to reflect critically on the self-directed learning activities for this course, and how they helped them become critical thinkers.

The students had a set of three projects for the learning assessments for the semester. The first was to interview some workers in a customer care industry in English and record the interviews. They were required to write a report summarizing the points raised by the employees on 'how they retain customers and receive positive ratings from their customers.' The company in question was a local company that had consistently won awards for quality customer services. Students received 25 percent grade for this project.

The second project was to make a presentation based off a discussion session with an AI professional. We invited an AI professional for a seminar with the students. The professional was to talk to students about 'AI TECHNOLOGY.' The students were to record the presentation of the AI professional, ask questions, and write their areas of agreements and disagreements on whether AI will replace most of human activities or not. Students received 25 percent grade for this project.

The final project was writing an article for a major newspaper on 'how to reduce food waste.' The article was published in a local newspaper. The students worked in groups to write their articles, and they had meetings amongst themselves and met with the teacher during their writings and discussions. Students received 25 percent grade for this project too.

Other forms of assessment for this course included reading assignments, group discussions and presentations, attendance and participation which had 25 percent grade.

3. Methodology

This study adopted the qualitative research method. The Grounded Theory-lite approach was adopted for the study. In other words, the categories from the study will be grounded on the views of the participants. This involves listening to the data, and letting the categories or concepts emerge and be grounded in the participants' views (Pidegon & Henwood, 1997) without any biased interference.

Pilot interviews and checks were done prior to commencing the actual interviews. Participation in the interview was voluntary, and the interviews were recorded, and moderated by both the researcher and an academic assistant.

Purposive sampling was used to select participants for the study. This involves choosing information-rich samples/participants. Thereafter, a focus group interview was used to collect data from the students. A total number of 10 students participated in this study. The participants for the study included 4 males and 6 girls. The focus group interview sessions took place on 4 different meetings. The first meeting was to introduce the interview and set the general direction for the interview. The second, the third and the fourth meetings were for participants to share their views. Each group interview lasted for an hour, 20 minutes, with 10 minutes break.

Data from the interviews were transcribed while remaining close to the original information from the participants. Member checks involved taking back the focus group transcripts to participants to confirm that their ideas were well documented during the focus group interviews. Participants agreed with the transcriptions, and interpretations of their data as being their expressed views.

The audit trail involved a record of the processes followed in the study. The audit trail included the following: 1) the preparation of interview guide based on research questions (unstructured), identification, selection of, and informing participants, and scheduling of focus group interviews. 2) Data collection preparation-interview guide, notes, recording equipment, file jackets, pc, and printers 3) Data analysis- personal memos, interviews transcripts, transcripts and index, and list of codes. 4) Activities-reflection, personal memo, drafting, writing, typing, and printing.

Triangulation in this study was used as a multiple source of data confirmation. First, it involved **g**athering data from relevant previous studies with varying cohorts, frameworks, methods, and then comparing these to distil

their relevance to this study. In addition, the research included focus group interviews to get participants views; observations made during the interviews about the participants were utilized in this study as well. Furthermore, member checks were done by taking the transcripts to participants to confirm that their ideas were well documented during the focus group interviews. Finally, the researcher also shared the transcripts and codes with his colleagues to check for consistency.

4. Focus Group Interview Questions

Guiding open-ended (unstructured) questions were developed by the researcher for the focus group interviews. The questions were pilot tested before the focus group interviews. The focus group interview questions are as follows:

1) Could you please tell us your experiences interviewing the AI professional?

2) What skills did you develop through interviewing the AI professional?

3) Could you please tell us your experiences interviewing the customer care workers?

4) What skills did you develop through interviewing the customer care workers?

5) How did this course assessment activities improve your learning skills? Please, share any other ideas or feelings, or thoughts you have about these assessment learning activities.

5. Findings from the Study

This study revealed that students enjoyed and actively participated in the self-directed learning activities and improved their critical thinking skills. The five categories emerging from the focus group interviews were grounded in the empirical data provided by the participants. They are as follows:

5.1 Critical Thinking and Asking questions

Asking questions is necessary for clarifying, and knowing, and so questioning can lead to knowledge. Therefore, questions are ultimately good for learning. However, learners need to develop their questioning skills further beyond the surface level. They need to be able to generate critical questions about phenomena. As a matter of fact, it takes effort from educators to help students learn to ask critical questions (Browne et al., 2012). These efforts are very necessary because knowing how to ask critical initial and follow-up questions is crucial for learning (Nussbaum et al., 2011). To emphasize, questioning means thinking, and thinking is manifested in the form of questions. However, all questions are not critical questions. The types of questions that trigger other questions are critical questions (King, 1995). Therefore, it is critically important to help learners develop skills for asking critical questions.

In this study, students expressed improvement in their ability to think critically and ask follow-up questions. Some of the students used to be shy asking questions, which is a bit cultural for Japanese students. For example, a participant said: ‘I don’t usually like asking questions and sharing opinions openly, but talking in small groups, and knowing what to ask, gave me more confidence to participate.’ Another participant said ‘at first it was hard, but my teammates helped make the interviews go smoothly; we were able to ask both initial and follow-up questions when we interviewed the AI expert; it was an interesting experience. I would love to do it again.’ One other participant had this to say: ‘the seminar we had on deep thinking helped me always think about the follow-up questions to ask the customer care professionals we interviewed; it went just fine.’

The findings show that students were able to take control of their learning activities. For example, being in control of the interviews, in addition to the other self-directed learning activities, empowered them to ask follow-up questions and sharpen their critical thinking skills. Critically looking at the world and others’ opinions can lead to new questions that improve what we already know. In this way, knowledge can be said to be a co-constructed reality, and not an isolated thing. By engaging with the world and other people, we can exchange ideas, opinions, viewpoints, which can lead to new forms of knowledge. Knowledge is, therefore, an interaction of giving and receiving, asking, and answering, speaking, and listening, presenting and being open to share ideas and viewpoints.

5.2 Communication Skills

Communication skills are invaluable skills for learners through which they can share feelings and thoughts for several purposes that aim to connect with others such as: inspiring, motivating, making orders, entertaining, directing, controlling, informing, and educating (Muste, 2016). Communication includes both verbal and nonverbal forms, and neither is self-sufficient, or independent of the other; they both give insights into other peoples’ views, and feelings. Hence, through communicative activities students can learn how people express

themselves and the meanings behind those expressions. By so doing, we prepare our students for both academic and career success, since good communication skills are required in both academic setting and beyond, like in workplaces (Gioiosa et al., 2019).

The findings show that the students demonstrated improvement in their communication skills. They got used to talking with others, shared opinions and views. It was a great learning moment for them because they learned from others. Sharing views and opinions can lead to further clarifications and promote knowledge. A participant said, 'we had fun talking in our class group. My teammates were good.' One other participant said, 'our group leader made things easy, everyone could share their ideas and opinions.' Obviously, students had a great time sharing their views and ideas amongst themselves.

Talking with professionals also helped improve their confidence in communicating and exchanging ideas and opinions. A participant said: 'the customer care workers were very intelligent, and shared good ideas, we talked freely with them, and asked good questions; we learned a lot.' There is no gainsay that the students had good exchanges with those they interviewed. In other words, they had an effective communication. Effective communication also involves thinking about what is to be said, and how to say it. So, students developed 'communicative logical' skills and critical thinking skills. 'Communicative logical thinking' involves talking with logical reasoning and supporting opinions and ideas with facts when expressing one's position or a general position about a subject. Meaning is expressed and received. In a way, reality is co-constructed and shared with others through a meaningful communication.

5.3 Time Management

A good time management skill can be a predictor of academic success. It is an invaluable tool in the assets of students. Therefore, academic deans, teachers and all front-line educators should constantly promote the idea of time management among their students (Chase et al., 2013). There are three kinds of time management behaviours: short-range planning, long-range planning and time attitudes (Laurie et al., 2002). Short-range planning is the capability to set out and systematize responsibilities in the short period of time. Long-range planning competence is to handle everyday activities over a long period of time by keeping significant dates and setting objectives (Alay & Koçak, 2003), and not always postponing things arbitrarily.

Learners can improve their time management by engaging in activities that demand the management of time. However, time management is only possible through self-motivation, performance, and ability (Brigitte et al., 2005). Therefore, assisting students to build their motivation towards a learning activity, providing the necessary scaffolding, and having them perform that task within a certain amount of time can improve students' time management skills.

In this study, students expressed that they improved their time management skills. One participant said: 'our group discussions went quick. We all knew what we were going to discuss and prepared ahead of time.' One other participant said, 'we had a target to finish the interviews on time; we stuck to the agreed time and made sure we didn't ask any unnecessary questions as follow-ups.' Obviously, conducting interviews and doing group work helped them plan and manage their time effectively. So students improved the management of their time in the various tasks they had to accomplish for assessment. Time management is a good skill for students because being able to work within a certain time frame and achieve set objectives is crucial for academic and overall success. Moreso, making judgements about what knowledge to accept as correct, and what information is relevant or irrelevant involves some element of critical thinking, thereby saving time, and improving time use and management.

5.4 Information Search Skills

The internet is a useful tool for searching and retrieving valuable information. It is an information superhighway that provides unlimited access to wealth of information on different topics contributed by people throughout the world (Chan, 2002). Students can also get information from oral sources and from non-internet sources such as by reading texts related to their areas of interest. However, many students get frustrated by slow response times of search engines and by their own inability to locate their desired information in a "reasonable" timeframe (Wallace et al., 2000) from both web and non-web sources. Therefore, students need to be shown different ways they can search and retrieve information on the internet and outside the internet. According to Edzan (2005), students can benefit from information search training like training on library information search skills, and other information search skills.

In this study, students accessed various databases and the internet to prepare for each project. They were taught how to look up for information online, as well as how to find books in the library. Talking about this, one

participant said, 'I didn't know I could get so much information on a topic by using specific key words. Knowing I could do this, helped me get lots of information for my contribution to our group assignment.' Another participant said, 'You recommended us to some databases and search engines for seeking for online resources for our assignments. I didn't know how I could have done the group assignment if that wasn't suggested to us earlier.' These affirmations show thtat students greatly improved their information search skills and became more efficient in finding information that they needed within short periods of time. Certainly, teaching students how to find relevant information promotes self-directed learning. In determining what information is good, relevant, or true, students apply their critical thinking skills using set parameters. Knowing what information is correct would entail first knowing what a correct information is, and then forming a judgement of an information that is correct, or incorrect. This entails extensive studies to understand a given subject matter. Therefore, in this study, students improved their study skills and information search skills.

5.5 Openness or Non-Openness to Others

The role of other people in the learning process cannot be overemphasized. Others are used as human resources and partners to elaborate information, data, facts, and opinions through question and answer to reach conclusions (Fraenkel, 2009). Positive interdependence should be encouraged among students. It is like a "a sink or swim" together feeling among group mates that can lead to successful execution of tasks (Kimura, 2009). Also, positive interdependence can lead to increased individual accountability (McCafferty, 2006).

In this study, students expressed that they became more interested in knowing about others' opinions, and what is out there to be explored. Interacting with other people can lead to openness to others. This involves wanting to understand their thoughts, experiences and making sense of them. Working with others in groups and exchanging ideas with practising professionals helped the students develop *openness* to the world around them. It also led to improvement in their appreciation of teamwork and learning from others. Listening to others, trying to understand their perspectives, following up with questions, and critically analysing information and drawing logical conclusions are all part of engaging with, and being open to others. Participants highlighted their sentiments to buttress this point. One participant said, 'the activities helped me understand others' opinions and thinking. I learned new things from them.' One other participant said, 'everyone had some ideas to share in our group assignment discussions. It was interesting to see how others think the same things differently.' However, one other participant said that 'though the activities helped me talk to more people, I don't like talking to people a lot; I am an introvert. But thanks for the opportunity; I wanted to try and have a feel of it.' This may suggest that though some students may enjoy some activities that involve social interactions, they may not be their favourite. In this study, every participant accepted to participate in the study voluntarily; hence, it was a moment of learning discovery for this very student, and the researcher.

6. Conclusion

The various assessment activities, namely: interviewing and interacting with working professional, and working as team writing an article for a newspaper helped the students broaden their perspectives as learners as well as develop their critical thinking skills. The findings show that they reflected about themselves as learners and noticed the changes that occurred in the learning process. This is a welcome development, since adult learners are expected to be able to assess own learning, and judge whether a learning has occurred or not.

We have reflected and considered the benefits of self-directed learning activities, and how these activities improve critical thinking skills of learners. Helping students to develop self-directed learning ability and critical thinking skills is an invaluable contribution to students' learning journey. Therefore, postsecondary or university language educators should promote self-directed learning, so students can acquire critical skills necessary for success as students and lifelong learners in this 21st century.

Recommendations

The students in this study engaged in self-directed learning activities through which they further developed their critical thinking. Most of the participants found the activities fulfilling and rewarding.

Future studies could seek to investigate various ways that introverted students could be helped better through self-directed learning activities as revealed in this study, especially as concerns openness or non-openness to others.

References

Abeles, V. (2010). *Race to nowhere: The dark side of America's achievement culture.* Lafayette, CA: Reel Link Films.

Alay, S., & Koçak, S. (2003). Relationship between time management and academic achievement of university students. *Kuram ve Uygulamada Eğitim Yönetimi Dergisi*, *35*, 326–335.

Brigitte, J. C., Claessens, E. W. V., Rutte, C. G., & Roe, R. A. (2007). A review of the time management literature. *Personnel Review*, *36*(2), 255–276. https://doi.org/10.1108/00483480710726136

Brookfield, S. D. (1986). *Understanding and facilitating adult learning*. Jossey-Bass.

Browne, M., & Keeley, S. M. (2012). *Asking the Right Question: A Guide to Critical Thinking*. New Jersey: Pearson Education, Inc.

Candy, P. C. (1991). *Self-direction for Lifelong Learning: A Comprehensive Guide to Theory and Practice*. San Francisco: Jossey-Bass.

Chan, S. N. (2003). *Making information literacy a compulsory subject for undergraduates: the experience of the University of Malaya*. Paper presented at the World Library and Information Congress: 69th IFLA General Conference and Council, 1–9th August 2003, Berlin.

Chase, J. A. D., Topp, R., Smith, C. E., Cohen, M. Z., Fahrenwald, N., Zerwic, J. J., … Conn, V. S. (2013). Time Management Strategies for Research Productivity. *Western Journal of Nursing Research*, *35*(2), 155–176. https://doi.org/10.1177/0193945912451163

DEMİR, Ö., Yaşar, S., Sert, G., & Yurdugül, H. (2014). Examination of the Relationship between Students' Attitudes towards Computer and Self-Directed Learning with Technology. *TeEğitim VBilim*, *39*(176), 257–266. https://doi.org/10.15390/EB.2014.3621

Dewey, J. (1993). *How We Think: A Restatement of the Relation of Reflective Thinking to the Educative Process*. Boston: D. C. Heath.

Edzan, N. N., & Mohd, S. M. S. (2005). NILA: A National Information Literacy Agenda for Malaysia. *Malaysian Journal of Library and Information Science*, *10*(1), 91–183.

Ellinger, A. D., Ellinger, A. E., Yang, B., & Howton, S. W. (2002). The relationship between the learning organization concept and firms' financial performance: An empirical assessment. *Human Resource Development Quarterly*, *13*(1), 5–21. https://doi.org/10.1002/hrdq.1010

Fischer, G., & Sugimoto, M. (2006). Supporting Self-Directed Learners and Learning Communities with Sociotechnical Environments. *Research and Practice in Technology Enhanced Learning*, *1*(1), 31–64. https://doi.org/10.1142/S1793206806000020

Fraenkel, J. R., & Wallen, N. E. (2009). *How to design and Evaluate Research in Education*. New York: Mc. Graw Hill. Inc

Gioiosa, M. E., & Kinkela, K. (2019). Classroom exercises with technology and communication skills: Students' perceptions. *Journal of International Education in Business*, *12*(1), 2–13. https://doi.org/10.1108/JIEB-02-2018-0005

Grow, G. O. (1991). Teaching learners to be self-directed. *Adult Education Quarterly*, *41*(3), 125–149. https://doi.org/10.1177/0001848191041003001

Hewitt-Taylor, J. (2001). Use of constant comparative analysis in qualitative research. *Nurs Stand*, *15*(42), 39–42. https://doi.org/10.7748/ns2001.07.15.42.39.c3052

Jansen, E., & Suhre, C. J. M. (2010). The effect of secondary school study skills preparation on first-year university achievement. *Educational Studies*, *36*(5), 569–580. https://doi.org/10.1080/03055691003729070

Kimura, H. (2009). Controversy over cooperative learning: An interview with Dr. George M. Jacobs. *The Language Teacher*, *33*(8), 13–16.

King, A. (1995). Designing the instructional process to enhance critical thinking across the curriculum. Inquiring minds really do want to know: Using questioning to teach critical thinking. *Teaching of Psychology*, 13–17. https://doi.org/10.1207/s15328023top2201_5

Knowles, M. (1975). *Self-directed learning: A guide for learners and teachers*. Chicago: Follett Publishing Company London.

Laurie, A., & Hellsten, M. (2002). *What Do We Know About Time Management*? A Review of the Literature, and a Psychometric Critique of Instruments Assessing Time Management University of Saskatchewan, Canada.

McCafferty, S. G., Jacobs, G. M., & DaSilva Iddings, A. C. (2006). *Cooperative learning and second language*

reaching. New York: Cambridge University Press.

McPeck, J. E. (1981). *Critical thinking and education*. New York: St. Martin's.

Merriam, S. B. (2001). Andragogy and self-directed learning: Pillars of adult learning theory. In S. B. Merriam (Ed.), *The new update on adult learning theory* (pp. 3–13). San Francisco: Jossey-Bass. https://doi.org/10.1002/ace.3

Murray, J. F., & Jennie, K. (2010). The self-directed learning readiness scale for nursing education revisited: A confirmatory factor analysis. *Nurse Education Today*, *30*(1), 44–48. https://doi.org/10.1016/j.nedt.2009.05.020

Muste, D. (2016). *The Role of Communication Skills in Teaching Process. Selection and peer-review under responsibility of the Organizing Committee of the conference.* The European Proceedings of Behavioral and Social Sciences EpSBS. https://doi.org/10.15405/epsbs.2016.12.52

Nussbaum, E., & Edwards, O. V. (2011). Critical Questions and Argument Stratagems: A Framework for Enhancing and Analyzing Students' Reasoning Practices. *The Journal of The Learning Science*, 443–488. https://doi.org/10.1080/10508406.2011.564567

Pidgeon, N., & Henwood, K. (1997). Using Grounded Theory in Psychological Research. In N. Hayes (Ed.), *Doing Qualitative Analysis in Psychology* (pp. 245–273). Howe. UK: Psychology Press.

Regan, J. A. (2003). Motivating students towards self-directed learning. *Nurse Education Today*, *23*(8), 593–599. https://doi.org/10.1016/S0260-6917(03)00099-6

Slaughter, R. (2009). *Experience in the Doctor of Pharmacy Program at Wayne State University increases students' readiness for self-directed learning.* Poster session presented at the annual conference of the American Association of Colleges of Pharmacy, Boston, MA.

Van Rensburg, G. H., & Botma, Y. (2015). Bridging the gap between self-directed learning of nurse educators and effective student support. *Curationis*, *38*(2), 1503. https://doi.org/10.4102/curationis.v38i2.1503

Vann, B. A. (2015). Learning self-direction in a social and experiential context. *Human Resource Development Quarterly*, *7*(2), 121–130. https://doi.org/10.1002/hrdq.3920070203

Wallace, R. M., Kupperman, J., Krajcik, J., & Soloway, E. (2000). Science on the Web: Students online in a sixth-grade classroom. *The Journal of the Learning Sciences*, *9*(1), 75–104. https://doi.org/10.1207/s15327809jls0901_5

Warburton, N., & Volet, S. (2012). Enhancing self-directed learning through a content quiz group learning assignment. *Active Learning in Higher Education*, *14*(1), 9–22. https://doi.org/10.1177/1469787412467126

Wichadee, S. (2011). Developing the Self-Directed Learning Instructional Model to Enhance English Reading Ability and Self-Directed Learning of Undergraduate Students. *Journal of College Teaching & Learning*, *8*(12), 43–52. https://doi.org/10.19030/tlc.v8i12.6620