

# Expectations of learning media for self-directed learning: Learners' perceptions of media choice

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*Self-directed learning (SDL) enables learners to guide themselves to achieve better learning. This idea is spreading now in Japan, and revealing what self-directed learners expect from learning media will help to design an appropriate media education and SDL environment. A questionnaire survey was used to gain information on the general tendencies regarding the choice of learning media. University students tend to choose media with high availability although they recognize that media might have low credibility. Additional interviews were conducted to show the complex process of media choice among self-directed learners. The analysis revealed three criteria for the choice of learning media: credible, academic, and personally preferable. Self-directed learners choose from these while they adjust the weighting of each dimension according to the different time allowed, the importance of the contents, and the degree of acquisition. A discussion on these results is conducted to determine how to encourage self-directed media use.*

*Keywords: Lerner's perception, Learning media, Media choice, Self-directed learning*

## Introduction

This research aims to reveal the expectations of the learning media suitable for the self-directed learning. Learners, who have choices of the learning media, especially in current Japanese classrooms, have certain expectations of the media as students have shown in previous studies. This section shows the current situation of the learning style and learning media based on the literature, which typically focused on media choice, and research questions of this study based on research needs found in the literature above.

### Current Situation of Active Learning

Learners today are able to choose their own learning styles because of the increase in the amount of attention paid to active participation in learning. In days past, teachers controlled how something was learned, but now this has changed. Students, especially in modern Japan, are expected to control their learning actively with the attention of a public voice such as the Japanese Ministry of Education, Culture, Sport, Science, and Technology (MEXT). On this trend, it is commonly indicated that 2012 Central Council for Education in MEXT stated that the transition of the Japanese university education must be based on the active participation of students to accomplish subjective learning (MEXT 2012). Furthermore, the coming revision of the government guidelines for education will expect Japanese students to explore the deeper meaning of subject-matter with their autonomy (Oyanagi 2017). In this situation, the independent learning method is one of the most important topics in Japanese educational research.

Such active participation in learning is usually called self-directed learning (SDL; adult education and educational technology), autonomous learning (language education), or self-regulated learning (SRL; educational psychology) in various educational research domains as indicated in the brackets. Given its subject matter, this study uses the term "SDL" to indicate the subjective-learner approach toward learning. Additionally, because the definition of SDL is wide, it can contain the features of other wordings, though the literature on SRL is also notable for its psychological tools and significant results, as Zimmerman and Schunk revealed in their examination of the components of SRL (Zimmerman & Schunk 2011). The point is that a wide definition of SDL and studies under this wide definition should gain more attention with statistically meaningful results so that more and more learners can share the findings and discussion to help their independent learning.

Because this learner-centered approach was already being discussed in the late nineteenth century, there are theories and discourses that support the change to SDL from teachers' strict control of learning, such as self-discipline

(Dewey, 1916), and self-determination theory (Deci and Ryan 2008). Teachers today know the importance of students' autonomy based on these new theories and traditions, and so teachers are expected not to strictly decide how to learn and what to learn, or at least less strictly than before.

Takahashi (2009) is one of the scholars who criticize the dichotomy between the teacher-pupil relationship. Though he placed tentative weights on the teacher side, the relationship has been changed after the war, and typically moved to student-centered from the 1980s. After the tight relationship between teachers and learners is released and they change their roles, learners become more responsible than before. In this situation, students are encouraged to be self-directed without being strictly controlled by others, and this is also the case when they choose learning media. Students have to own the responsibility of making this choice. This transition of responsibilities is one of the research needs in this study to determine learners' media choice in relation to SDL.

### **Current Situation of Media in Learning**

The appearance of various innovative media has also affected this educational transition that allows students to choose their own way of learning. With the development of information and communication technology (ICT), many learners are able to reach various media these days. They have many options in learning media, such as traditional books, lectures, other face-to-face communication options, electronic publishing, diverse wikis, online courses such as Massive Open Online Courses (MOOCs), and other media with developed ICT. These various media have different characteristics, which let making a choice can be complicated and difficult. Nevertheless, the many positive characteristics of various media allow students to gain deeper knowledge and understanding, as many studies on education and media have shown these days.

For example, media development has led to extensive studies on the utilization of media in the class by learners, from pre-school children (Bandoh et al. 2010; Hotta et al. 2011; Kodaira 2016), to graduate students (Matsuhashi 2015; Wada 2011). However, the discussion on independent learning does not seem to be adequate. Although the learning media inside the class is important, the use of such modern media tends to happen more outside the class. This viewpoint is seen in a report by Sato and Nakahashi (2014) on media utilization in an environment where all children have tablets, for example. Consideration about media and learning outside the class is especially important in situations of SDL in higher education because university students are required to practice independent learning, which usually happens outside learning. This shows the research needs that learning media usage outside the classroom should include in the research topic, such as the choice of learning media in the daily life of students.

### **Choice of Media**

From the point of view of media choice, which is not necessarily limited in learning contexts, Gotoh (2014) revealed four characteristics of media through quantitative research with a questionnaire survey of students. He explained that (a) reliability, (b) timeliness (novelty, how quickly the news is reported), (c) ease of use and (d) searchability are the characteristics that people consider when choosing news media. Recently, he also indicated that personal preference of how much users like media is concerned with the emergence of various types of media, including social media (Gotoh, 2015). This research is remarkable because Gotoh illustrated how to choose media in a suitable way. The next objective for current research is the specific application of this study to the educational and learning scene in independent learning. In this context of learning, the criteria or reason to choose is as important as Gotoh indicated in the general media choice, and so that the new research is needed in this area.

A few studies have tried to deepen the media choices especially for SDL, but they have focused on certain media only. For example, Twitter was investigated for its characteristics, which may be suitable for reflective learning (Cho & Cho, M, 2013). This action research showed that the timeline on Twitter encourages students to review what they learned. Another study showed that paper media helps students to organize what they learned when they are placed in an environment where quality e-mail and e-learning materials are available (Väljataga & Fiedler, 2009). In relation to the above limited research, the study to explore the media choice of students typically used for learning, with the choices including various kinds of media from the old type of media to the newest type.

### **Research Questions (RQs)**

Considering the above studies and situations, this study answers two research needs. First, the choice of media should be discussed in the context of learning situations, with the understanding of the existence of various learning media. This study focuses on the most used learning media among university students in the present media environment to grasp the general situation of media choice in SDL. The research should answer the questions as follows: What do university students most use as media for their own learning? How does the choice come from?

The chosen media and the backgrounds of these media will be considered to determine how learners in the 21st century use modern media. Furthermore, the background research is meaningful to indicate the typical case for high SDL tendency.

Second, in the situation of learning media choice, learners of high SDL tendency would have a special way of selecting learning media. Literature above have shown that there would be reasons even in the choice of learning media from various types. Thus, the research questions are as follows: How do self-directed learners choose the learning media? More specifically, what are the perceived media criteria to be selected in the learning situation? This qualitative research question will help the understanding of expected media with the complex process of choice.

Based on these two points, this study focuses on two RQs as RQ1: How the most used media chosen by university students?; and RQ2: What are the perceived criteria of self-directed learners to choose their learning media?

## Methods

### Research Design

This study first focuses on the media that current university students in Japan use the most for learning to reveal the general tendency of learners' media choice outside the classroom. The background of their media choices, including the tendency of SDL, is also explored. Additional research is designed based on the need to reveal the complex process of media choice decisions. This survey responds to RQ1. This interview study is expected to deepen the previous results on the general tendency of media choice and reveal the specific cases of high SDL tendency. Considering the research needs stated in the introduction, the researcher chose semi-structured interview which is suitable to find complex backgrounds and processes of behavior, and is able to be combined with quantitative results (May 2011). This interview responds to RQ2 and refers to the result of the survey as well.

### Instruments

For the survey, a questionnaire was developed to ask students to choose the media that students use for learning. It had multiple choices from a list of possible media with a choice of others and asked participants to indicate specific media, not on the list. Students also selected the media that they used for learning most frequently. The perceived level of reliability of the chosen media was also inquired about, considering that this could be the most important media characteristic in the above study by Gotoh (2014). Additionally, the media literacy scale by Gotoh (2005), which included subjective and critical attitudes toward media, and the SRL strategies scale developed by Fujita (2010), were included to determine the other characteristics of media and learning. SRL strategies scale does not use the word SDL, but this scale and a part of the media literacy scale indicates the tendency of SDL due to SDL wide coverage.

The interview process followed the protocol developed from a pilot interview with a graduate student majoring in media and education, with a member check performed by a professor as another coder. This protocol is composed of (a) an ice breaker and the confirmation of research ethics, including the issue of the recording; (b) two questions for participants' media choice for learning with specific indication; (c) two questions for media choice criteria they recognize and usually care about; (d) two reaction type questions to the objective statements on media choice; and (e) additional comments for free talk. This method allowed this research to obtain the narrative story of the typical perception of media choice in learning contexts, while the main theme of the interview was reserved for each interview session with some common questions to all participants.

### Participants

The survey questionnaire was distributed to five public universities and five private universities in a metropolitan area of Japan. Originally, 300 valid responses were collected, with 72% response ratio to determine the statistically meaningful correlation between media literacy total score and SRL (Takabayashi & Sasaki 2015). Regarding the separate questions about the media that students use most frequently, 271 answers (123 by men, 144 by women, 1 by others, three by NA) were provided because this question was not a simple multiple-choice question but students had to select every media they used, in the latter half of the questionnaire.

The interview participants were five undergraduate students, as shown in Table 1. Because this study argues about the typical case of self-directed learners' media choice, specific participants were chosen by theoretical sampling

(May 2011). The author asked all participants who received high SRL strategies scores if they would agree to further research participation. Table 1 shows the final number of available participants who agreed to participate further. As the table indicates, the number of participants was not well balanced. This is a limitation of this study, but it is to be expected given the specific nature of the study. To avoid bias, the author tried to obtain variations of participants' ages and majors.

Table 1.

*Profile of Finalized Interview Participants*

Participants	SDL tendency quartile (highest group=4)	Academic Year	Gender	Major
A	4	4	F	History
B	4	4	F	Education
C	3	4	M	Philosophy
D	4	2	F	International Relationship
E	3	2	F	Education

### Data collection

The survey questionnaires, which were distributed to five public universities and five private universities were collected by postal mail using the return-mail envelope sent with the questionnaire and explanation sheet. Every participant received oral and written explanations on the aim of the study and their rights. Answers in both numbers and comments were entered in the computer as they arrived at the author.

The whole process of the interview was recorded and transcribed following the interview protocol. All participants were invited to the research room one by one on the selected date and time. The average duration of the interview time was approximately an hour.

### Data Analysis

As for the survey data, answers to the open-ended questions about the reasons and criteria for most used learning media were sorted into five groups based on the content of the answers and based on studies on media. For example, interactive features and level are one aspect for distinguishing media types in the new typology (Lee 2015), and the traditional typologies differentiate media by reliability, high and popular culture, and format (Masterman 1985; McQuail 1997).

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For the interview data analysis, coding was not only done by the author but also with the professor and graduate students majoring in media and education so that the research ensured the reliability with the multiple coders. The analysis software used for the coding was QSR Nvivo 10. First, the coders read the printed transcript to understand and examine it sentence by sentence, and after this reading phase, all transcriptions were input into the software and divided into meaning units with the function of the node.

Coding required a theoretical framework from the whole literature review in the introduction section. Based on Gotoh (2014), criteria for the media choice seem to have four categories. However, the results of 167 university students' open comments in a survey of their perception of media usage for learning indicated that searchability is no more considered in the learning context, and a new category strongly related with academic characteristics is forethought. After all, 26 codes were generated during the coding process of the interview, referring to the frame and words from the literature and survey comments.

## Results

### Survey Results for RQ1

The survey showed that, generally, university students tend to choose the media that is easy to access for their learning, with low subjective media literacy. The media that university students chose most frequently for learning were random, unspecified Web pages that they usually found using search engines. A total of 109 students gave this response. Next, a total of 91 students claimed to be printed books users, while 55 students claimed to use specific Web pages. Finally, 11 students answered that they use people as media—including their friends—and five students answered that they used a TV or newspaper. The total number of people is shown in the second column of Table 2.

Table 2.

*Media Used the Most by Learners with the Group Character*

Most Used Media	Number	Perceived Reliability of the Media (%)	Media Literacy Subjective Attitude Score	SRL Score
Random Web Pages	109	65.6	26.0	57.1
Physical Books	91	80.0	27.1	60.3
Specific Web Pages	55	83.8	26.8	59.1
People as Media	11	76.0	24.5	61.2
Newspaper, TV	5	60.0	23.8	63

It is commonly understood that random Web pages are useful and contain much information, but not all of them are trustworthy. It seems that learners who choose this media also know this. The reliability of random Web pages among learners was 65.6% (Table 2). This percentage is the lowest percentage of reliability among other media reliabilities.

Furthermore, there was no statistically meaningful difference between the “Random Web pages” group and the others in the scores of critical attitude, which is one of the three components of media literacy by Gotoh (2005). Another component of media literacy in this work is the subjective attitude. In this component, the score of learners in the “Random Web pages” group was significantly lower than the score of groups that chose printed books and specific Web pages ( $F(4,261)=3.44, p<.01$ ). For this ANOVA, two minority groups were not included since the number of participants is not enough for the statistical test. This statistical difference is also recognized in Figure 1, with their subjective media literacy score and that of other groups. Additionally, “Random Web pages” group had the lowest SRL point—however, this difference is not statistically meaningful. This subjective attitude does not seem to be as simple as the survey results imply because the open comments on this survey indicated that even though the respondents had a relatively high subjective attitude, this attitude might not be there all the time. The respondents may change their strategies to choose different learning media for different contexts.

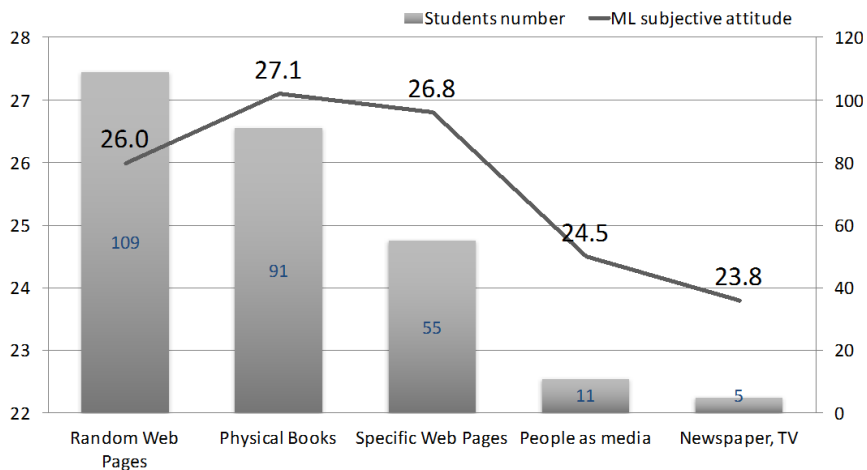


Figure 1. The numbers of students and their subjective attitude score for each media

## Interview Results for RQ2

Following the survey for all learners at university, the study analyzed what particular learners think about when they choose a learning medium. The analysis found that reliability is considered with two other media characteristics in the context of learning. Three categories that are the criteria considered in the self-directed learners' process of learning media choice are described as media that is perceived as (a) reliable media, (b) academic contents, and (c) personally preferable media and contents, as shown in Table 3. Each category has four to eight codes that appear in the transcribed data. The first criterion, "reliable," is indicated by eight codes such as "firm," "known author's information," and "governmental publicity of the media." This criterion seems to mainly depend on the characteristics of media itself. In this case, more traditional media will satisfy the demand from self-directed learners, although e-published media has also been developed to match this demand rapidly these days. Second, the "academic" criterion also matters. Self-directed learners try to find media that looks like academic media. This may strongly be related to the first criterion, but considering indicator codes such as the academic writing style, this criterion gains the effect of the contents more. When learners choose hard and tranquil media, this demand of academicism will be satisfied. The point here is that the interactive media may face the possibility of losing its attractiveness as learning media. This issue will be complemented with the third criterion. The third one asks media to be "preferable to themselves." The indicator codes such as rapid feedback, media format, and availability are for relatively new media so that various media have possible criteria as the ideal learning media. It seems difficult for only one media to satisfy all three criteria, but the interview responses also revealed the processes used to cope with this difficulty.

The narrative stories during the semi-structured interview showed that self-directed learners switch the weight balance for these three criteria for the media choice. Investigating the situation where the learners change the criteria weight, their narrative described that there are limitations of different (a) time allowed, (b) the importance of the contents, and (c) cognitive stages of the learning process.

Qualitative research showed that such dynamic processes of learning and media use exist. According to participants C and D, the criteria of media selection changes depending on the situation learners face. In other words, the media usage of A, B, and E tends to be static with the belief of the criterion of credibility, but this also shows that possibility of changing the way of coping with the difficulty of selecting the media. In the typical cases seen in the interview, a learner who has much time and interest with higher understanding will choose media according to the criteria of "reliability" and "academic," while another learner with limited time, importance, and understanding will choose only on the criterion of "preferable." Further qualitative studies will be needed to see how this dynamic process of criteria weight switching happens.

Table 3.

*Categories of Perceived Ideal Media Criteria by Students of Higher SDL tendency*

Categories	Indicators
a: This media is credible (media)	Credibility Reliability Author information Comparability Neutral content Newest information Authorized Publicly provided
b: This media is academic (contents)	Scholarly resources Logical composition Academic writing style Correctly cited
c: This media fits me (media and contents)	Personal interest Amount of information Rapid feedback Ease of understanding Content domain Preferable feeling of media Availability

## Discussion

This study revealed what is demanded from learning media by self-directed learners. The media choice process would suggest some issues with students' learning attitude and behavior, and the appropriate media environment that enhances students' SDL.

### **RQ1: Ease of Web Based Media and Low SDL Tendency**

First, the study showed that learner's active subjectivity matters in this era, where massive media reaches people easily without a strict screening of reliability, from the implication of the result that higher self-direction tendency groups significantly tend to think more of media credibility and tend not to use media just because of their ease of use. This result does not conflict with a previous questionnaire survey, which found that SDL has a positive relationship with media literacy (Takabayashi & Sasaki 2015). This study indicates that the ability of critical and subjective media behavior for learning is rooted in SDL and the training of it.

Students in these days seem to use easy and affordable media for learning, although they know the reliability of this kind of media is typically low. Their media literacy is good, but their behavior does not reflect what they know. Learners know how they can reach reliable media because their critical attitude toward the media is seen in the media literacy score they showed in the survey results, but they use media with low reliability because of the lack of autonomy and subjective attitude toward media usage in learning contexts.

The need for media literacy education has been discussed for a long time (for example; Masterman 1985), and this education has partly succeeded in the aspect of the critical use of media. The next stage of this kind of education involves changing their expectations and attitudes. This is needed to raise subjective attitude as a component of media literacy. Critical attitude contributes sufficient media usage more when it is with a subjective attitude. The literature has argued about some other characteristics that are concerned with media choice, but in the case of

modern learners in Japanese universities, handiness and ease access is emphasized too much. Gotoh (2014) states that the factor of the reliability will be underestimated when the critical attitude is low, but this research points out another aspect. The subjective attitude also should be considered, especially for the media choice of learning today, because it strongly affects learners' behavior even though they know how to be critical.

**Future of easy access.** In other words, the results of this survey mean that learners who had no way to reach learning media before because of a lack of autonomy have the chance to learn using media nowadays. The quality of learning might not be so high with low reliability, but at least technological evolution has promoted learning. High-quality media were limited and difficult to obtain before, as access to the library and other learning materials were only for wealthy or highly motivated students. However, people today can reach information easily even if they are not strongly motivated, without quality expectations for learning media. This suggests two things. First, fostering higher reliability and quality of learning media on the Web or any other format that is affordable for broader students will help to develop much more students' learning qualities. Second, future expectations of learning media are that it will promote the autonomy of learners who try to start using learning media the easy way. Stimulating autonomy by the functions of learning media that they use most will help learners in the future.

As an example of these suggestions, there were more than 800,000 registrations in MIT and Harvard MOOCs during the first year, and approximately 43,000 completed the courses (Ho et al. 2014). This huge enrollment number shows that more people can reach high-quality media for learning with easy access. Stimulating students' subjective attitudes will help more people complete courses and reach a better quality of learning. If the design of the MOOC fosters learners' autonomy, more learners will stay and keep learning with reliable, quality media even after the course is over. The quality of learners' expectation is inseparable with the quality of learning media. It is expected to improve in both aspects.

## **RQ2: Reliable, Academic, but Personally Preferable Media Affordance for SDL**

Research needs to look at the detailed process of media choice, especially in the SDL process too. The author proposed an interview and qualitative analysis that revealed three main expectations of learning media criteria. The weight of these criteria changes reflecting different situations, and so the learning environment should ensure the appropriate time, task, and motivation for independent learning.

Three criteria of learning media should be considered when educational institutes prepare the learning environment. This study will contribute to the construction of a suitable environment for SDL by suggesting what the learners want—easy access to reliable and academic media whose variety can meet different personal preferences. Thus, the learning environment that has more access to various types of quality media is expected to cope with using the different weight of criteria. This argument adds a new dimension to recent studies on affordance and learning design (Arenas 2015; Ignatova et al. 2015), which tend to focus only on the preparation of ICT media. Various media characteristics including traditional learning media will have the possibility to answer self-directed learners' beliefs. Additionally, the set of options will help students learn more like self-directed learners, who cope with these three criteria for learning media choice.

**Dynamic process of media choice.** Regarding the result that media usage is a dynamic process where learners switch main media criteria, educational tasks should give enough time to prevent too much weight being given to personal preferences. On this point, teachers should clarify the relevance of the task to learners' life to make learners give more importance to the contents they learn. These tactics that promote SDL and subjective media use can refer to more works on the instructional design from such another aspect. Equally, it is important to set the tasks to match the learning process in cognitive development. Tasks that are too difficult or too easy might cause learners to pay low attention to either reliability or academic feature of the learning media. For this attention during the educational treatment, not uniform care but various tasks for different cognitive stages will finally result in the individual development and SDL realization.

For further research, qualitative data of the learners' media choice will be needed. It would deepen the discussion if researchers could collect more participants with theoretical sampling for all types of learners. Ethnography also contributes to describing the whole process of media and learning behavior. In terms of theories, more focus on users will help to analyze the ethnography. For example, a uses and gratifications approach could be reconsidered to understand what the audiences of learning media feel when they choose the media, although the interaction on the media should be counted. There is much research on how teachers utilize media, but how independent learning is supported by the media should also be studied. This study revealed the expectations that learners have made a contribution to this issue by suggesting connections between learning media choice and SDL.



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