SRI LANKAN JOURNAL OF EDUCATIONAL RESEARCH

Sri Lankan Journal of Educational Research 2025
Volume 17, Pages 01 – 28
Department of Research and Development

ADAPTATION AND VALIDATION OF A SELF-DIRECTED LEARNING READINESS SCALE FOR ADVANCED-LEVEL STUDENTS IN SRI LANKA: SL-SDLRS-AL

Piratheeban, K.[1], Bandara, L.M.K.[2]

[1]Dept. of Education, Faculty of Arts, University of Jaffna

[2]Dept. of Humanities Education, Faculty of Education, University of Colombo

kpiratheeban@univ.jfn.ac.lk

Abstract: This study aimed to adapt and validate a contextually relevant Self-Directed Learning Readiness scale (SDLRS) for advanced-level students in Sri Lanka. Drawing from three widely recognized SDLRSs: SDLRSNE (Fisher et al., 2001), SRSSDL (Williamson, 2007), and DSVS-SDLR (Dulloo et al., 2023), a 46-item preliminary scale was developed, encompassing five dimensions: Awareness, Learning Strategies and Styles, Motivation, Team Building, and Evaluation. Content validity was established through a two-round Delphi process. In Round One, 14 experts evaluated the items, resulting in the exclusion of one item for failing to reach the 80% consensus threshold and 14 items based on qualitative feedback. In Round Two, eight experts assessed the remaining 31 items for relevance and clarity. Item. I-CVI were calculated by dividing the number of experts rating an item as relevant by the total number of experts, with a threshold of ≥ 0.78. All items met this threshold, achieving an I-CVI of 1.00. The S-CVI was S-CVI/Ave = 1.00 and S-CVI/UA = 1.00, confirming excellent content validity. Consensus was achieved as all experts independently rated the items as relevant, with no re-rating required. Subsequently, a pilot study was conducted with 64 students from five academic streams across two educational zones in the Northern Province of Sri Lanka. The preliminary 31-item scale demonstrated strong internal consistency (α = .848). Two items were removed due to item-total correlations below 0.30, resulting in a finalized 29-item scale, which maintained strong internal consistency (α = .853). Construct validity was initially evaluated using item-total correlations as a preliminary check, with all retained items exceeding the 0.30 threshold, indicating acceptable alignment with their respective dimensions. These findings support the SL-SDLRS-AL as a valid and reliable tool for assessing SDLR among advanced-level students in Sri Lanka. The instrument offers practical implications for educators and researchers aiming to enhance autonomous learning capabilities in advanced-level education.

Keywords*: Self-Directed Learning Readiness, Scale Validation, Delphi Technique, Pilot Study, Advanced-level Students, Sri Lankan Education*

Introduction

Recently, the global education system has increasingly emphasized the need for learners to become more independent, reflective, and proactive in their learning processes due to rapid technological advancement. Furthermore, the global education system aims to cultivate 21st-century skills among students and attain the Sustainable Education Goals. This shift has placed greater importance on the concept of Self-Directed Learning (SDL). Consequently, this concept has become the central concept

in modern Education. SDL refers to a process in which learners take the initiative to diagnose their learning needs, set learning goals, find suitable learning materials and resources, select and implement effective learning strategies, and evaluate their learning outcomes (Knowles, 1975). Similarly, Leatemia et al. (2016) and Iwasiw (1987) defined the SDL as a process in which learners plan, implement, monitor, and evaluate their learning activities. It is now widely accepted that developing the ability to learn independently is a vital skill for success in both academic and lifelong learning settings.

From a definitional standpoint, SDL is viewed from different perspectives by different scholars. It is viewed as an attribute (Dulloo et al., 2023; Fisher et al., 2001; Kasworm, 1983; Williamson, 2007), a process (Candy, 1991; Grow, 1991; Knowles, 1975), or a combination of both (Brockett & Hiemstra, 1991; Garrison, 1997). Among these perspectives, the attribute view of SDL is referred to as Self-Directed Learning Readiness (SDLR). Wiley (1983) defines the SDLR as the degree to which an individual possesses the attitudes, talents, and personality traits necessary for SDL. Similarly, El-Gilany (2013) defines SDLR as the extent to which individuals have developed the necessary skills and traits to engage successfully in SDL. In addition, Fisher et al. (2001) define the SDLR as the extent to which an individual is prepared to take responsibility for their own learning and identify their learning needs. They view SDLR as an attribute, particularly as a skill that can be developed and improved. According to their perspective, SDLR exists along a continuum and is shaped by a person's abilities, attitudes, and personal characteristics. However, it can be enhanced through regular engagement in independent learning experiences.

Furthermore, it encompasses several dimensions, including motivation (Cadorin et al., 2013, 2020; Cheng et al., 2010; Deng, 1995; Dulloo et al., 2023; EUL KYOO BAE & Minyoung Lee, 2010; Oddi, 1986), self-management (Fisher et al., 2001; Timothy et al., 2010), self-monitoring (Cheng et al., 2010), learning strategies (Cadorin et al., 2013; Dulloo et al., 2023; Williamson, 2007), Team building (Cadorin et al., 2013; Cheng et al., 2010; Oddi, 1986; Williamson, 2007), Evaluation (EUL KYOO BAE & Minyoung Lee, 2010; Suh et al., 2015; Williamson, 2007) and awareness (Cadorin et al., 2013; Dulloo et al., 2023; Williamson, 2007). This multidimensional perspective of SDLR reveals the multifaceted nature of SDLR. Students with high SDLR are more likely to be responsible for their own learning, utilize effective learning strategies, and demonstrate resilience in overcoming learning difficulties.

Many scholars have developed various distinct scales to measure SDLR in different contexts, including those by Guglielmino (1977, as cited in Hoban et al., 2005), Deng (1995), Fisher et al. (2001, 2010), Williamson (2007), Cheng et al. (2010), Timothy et al. (2010), Cadorin et al. (2013, 2020), Askin (2015, as cited in Tekkol & Demirel, 2018), Suh et al. (2015), H. Lee & Mori (2021), and Dullo et al. (2023). Among these, the scales developed by Guglielmino (1997, as cited in Hoban et al., 2005), Fisher et al. (2001), later refined in 2010, and Williamson (2007) are widely used to measure SDLR in various contexts. More recently, a scale was developed by Dulloo et al. (2023) in the Asian context. These scales have utilized to measure SDLR in various

fields, including tertiary level education such as nursing (Cheng et al., 2010; Fisher et al., 2001; Fisher & King, 2010; Fooladvand & Nadi, 2019), health sector (Williams & Brown, 2013), medical field (Hoban et al., 2005; Kumar et al., 2021), teachers and student-teachers (Karataş & Başbay, 2014; Torabi, Abdollahi, et al., 2013; Torabi, Aslani, et al., 2013), engineering (Stewart, 2007), as well as secondary education levels (Jaleel & O.M., 2017). These instruments were developed and validated in specific cultural and educational settings, such as America, Australia, the UK, China, Korea and India. When applied in other countries, particularly in developing countries experiencing economic crises such as Sri Lanka, the validity and reliability of these scales may be affected by cultural and systemic differences.

In Sri Lanka, there is growing concern among educators and researchers regarding students' readiness to engage in self-directed learning, especially at the advanced level, as this is the stage preparing them for tertiary education. However, the Sri Lankan school system still relies heavily on a teacher-centred approach and an examination-oriented, rote learning process (National Education Commission, 2022). Additionally, the widespread prevalence of private tuition (National Education Commission, 2022) further limits opportunities for students to engage in SDL. As a result, students often lack both the opportunity and encouragement to take responsibility for their own learning. In response to this situation, the newly proposed curriculum emphasized the importance of developing SDL habits among students by promoting SDL rather than directed instruction to cultivate lifelong learning (Ministry of Education, 2020; National Education Commission, 2022). To achieve this, various suggestions are proposed, including the introduction of a module system and elective subjects to ensure flexibility in choice, the implementation of a credit system similar to those used in university-level education, and a focus on reforming the existing examination system (Ministry of Education, 2020). However, the absence of structured efforts in practice to foster SDL skills in schools highlights the importance of assessing the current level of SDLR among advanced-level students.

Despite the significance of this issue, there is currently no standardized or culturally adapted tool available to measure SDLR among advanced-level students in Sri Lanka. Although a small number of research studies have been conducted in the field of SDL in Sri Lanka, most existing research on SDL in the country focuses on university students or teacher education programs. Among these, a very few studies have utilized scales to measure SDLR (Piratheeban, 2023). Therefore, there is a clear need to adapt and validate an SDLR instrument that suits the educational context of Sri Lankan advanced-level students. Such a scale can help identify strengths and weaknesses in students' learning readiness, supporting educational policy and practice in designing interventions to promote SDL.

Considering these gaps, this study aims to adapt and validate an SDLR scale specifically for advanced-level students in Sri Lanka. The adapted version, named the Sri Lankan Self-Directed Learning Readiness Scale for advanced-level students (SL-SDLRS-AL), draws on selected items from the scales developed by Fisher et al. (2001, 2010), Williamson (2007), and Dullo et al. (2023). Selected items from these scales were modified to suit the local school environment, particularly for an

advanced-level classroom, student understanding, and socio-cultural context. The study adhered to standard psychometric procedures, including expert validation to ensure content validity and pilot testing to assess reliability and construct validity, using data collected from advanced-level students in the Northern Province of Sri Lanka.

Through this effort, the research aims to enhance student-centered learning practices in secondary-level education and support the development of more independent and self-motivated learners in Sri Lanka. The findings of this study will also be helpful for policymakers, curriculum developers, teachers, educational planners, and researchers who aim to integrate SDL into school-level education. Ultimately, a culturally appropriate SDLR scale can serve as a foundation for promoting lifelong learning competencies among young learners in the country. Given the relatively small pilot sample, construct validity findings should be interpreted as preliminary, serving as an initial step toward full-scale validation in future studies.

Aim of the Study

The aim of this study is to adapt and validate a contextually appropriate SDLR Scale for advanced-level students in Sri Lanka, in order to assess their readiness for engaging in self-directed learning.

Objectives of the study

1. To adapt items from existing SDLR scales developed by Fisher et al. (2001, 2010), Williamson (2007), and Dullo et al. (2023) to suit the educational context of Sri Lankan advanced-level students.
2. To establish the content validity of the adapted Scale (SL-SDLRS) through expert evaluation using the Delphi technique.
3. To examine the reliability and construct validity of the adapted scale through a pilot study with advanced-level students.
4. To finalize a validated tool for assessing SDLR of the advanced-level students in Sri Lanka.

Literature Review

The Concept of SDL

SDL is a concept that has gained wide attention in modern educational research and practice. It was first defined in detail by Malcolm Knowles (1975), who described it as, “a process in which individuals take the initiative - either with or without the help of others - to diagnose their learning needs, set learning goals, find resources, choose strategies, and evaluate their outcomes” (p.18).

SDL is now recognized as a critical skill for success in higher education, professional development, and lifelong learning. As science and technology continue to evolve rapidly, the ability to learn independently is essential for learners and professionals adapting to continuous changes in society and the workplace.

Many researchers agree that SDL helps learners become more responsible, motivated, and engaged in their learning (Garrison, 1997; Lounsbury et al., 2009; Loyens et al., 2008). Students who are self-directed are better at managing their time, setting realistic goals, monitoring their progress, and evaluating their outcomes. SDL is closely linked to other educational outcomes, such as achievement motivation, academic self-concept, interest in learning (Ramli et al., 2018), general self-efficacy (Karataş & Başbay, 2014), academic self-efficacy (Saeid & Eslaminejad, 2016; Samarasooriya et al., 2019; Shohoudi et al., 2015), critical thinking (Karataş & Başbay, 2014), and academic achievement (Jaleel & O.M., 2017; Karataş & Başbay, 2014; Khalid et al., 2020). Because of its importance, many educators and policymakers now encourage the development of SDL skills across all levels of education.

The Concept of SDLR

While SDL focuses on the learning process itself, understanding a learner's readiness to engage in such a process requires a shift toward the concept of SDLR. SDLR embodies the attribute perspective of SDL. This perspective was introduced by Guglielmino in 1977, offering a new dimension to SDL research that fostered deeper conceptual understanding and inspired numerical studies.

Wiley (1983) defined SDLR as, "the degree the individual possesses the attitudes, talents and personality features necessary for self-directed learning" (p.182). Similarly, El-Gilany and Abusaad (2013) described the SDLR as the extent to which learners have acquired the capabilities to effectively engage in SDL. Furthermore, Fisher et al. (2001) noted that SDLR refers to the degree to which one is prepared to be accountable for their own learning and learning needs and importantly added that it is a skill that can be taught (as cited in Justus et al., 2022).

Based on these definitions, SDLR can be understood as the extent to which an individual possesses the attitudes, abilities, personality traits, and acquired capabilities necessary to take initiative, manage, and take responsibility for their own learning needs and processes. It encompasses the preparedness to engage effectively in self-directed learning, and it is a skill that can be nurtured and developed over time through teaching.

Students with high SDLR are more likely to succeed in environments where they are expected to take responsibility for their own learning. Accordingly, SDLR has become a critical area of research, as it enables educators to assess the extent to which learners are ready for engaging in SDL and to design instructional practices accordingly.

Grow (1991), in his Staged Self-Directed Learning (SSDL) model, categorized learners into four types based on their readiness for SDL: dependent learners, interested learners, involved learners, and self-directed learners. Similarly, Williamson (2007) classified students into three groups based on the scores obtained from her SDLR scale: scores between 60 and 140 indicate a low level of SDLR, scores between 141 and 220 indicate a moderate level, and scores between 221 and 300 indicate a high level of SDLR.

Understanding students' levels of readiness for engaging in SDL can help educators tailor their instructional strategies. For instance, if students demonstrate low SDLR, teachers may need to provide structured guidance and scaffolding to support their learning. In contrast, for students identified as involved learners, minimal guidance can be offered to encourage autonomy and deeper engagement in SDL tasks.

Over time, various scholars have proposed different dimensions of SDLR based on the context in which their research was conducted. The presence of overlapping, yet distinct, dimensions across different SDLR measurement scales highlights the importance of developing context-specific tools. In the Sri Lankan context, particularly for advanced-level students transitioning to tertiary education or employment, there is a pressing need for a uniquely tailored SDLR scale that accurately captures their readiness and supports appropriate pedagogical interventions.

Existing SDLR Scales

In response to this conceptual development, several instruments have been designed to measure SDLR across different populations and educational settings. These scales vary in structure, scope, and applicability.

To begin with, one of the earliest tools is the Self-Directed Learning Readiness Scale (SDLRS) developed by Guglielmino (1977, as cited in Hoban, 2005). This scale comprises 58 items across eight dimensions: openness to learning opportunities, effective learner, initiative and independence in learning, informed acceptance of responsibility for their learning, love of learning, creativity, positive orientation to the future, and ability to use basic study skills and problem-solving skills. The SDLRS has been foundational in SDLR research and is often used as a benchmark in subsequent studies.

Similarly, the Self-Directed Learning Readiness Scale for Nursing Education (SDLRSNE) developed by Fisher et al. (2001) was specifically designed for nursing students. The original version included 40 items organized into three dimensions: self-management, desire for learning, and self-control. This scale was later refined in 2010 with 27 items, while retaining the exact three dimensions. It has gained wide application in health education and has demonstrated strong psychometric properties in terms of reliability and validity.

In addition, the Self-Rating Scale of Self-Directed Learning Readiness (SRSSDL) by Williamson (2007) is another significant instrument. It includes 60 items categorized under five dimensions: awareness, learning strategies, learning activities, evaluation, and interpersonal skills. This scale has been employed with undergraduate and postgraduate students across various disciplines.

Moreover, in a more recent contribution, Dulloo et al. (2023) developed a new SDLR scale tailored for medical students in India. This instrument, known as DSVS-SDLR, comprises 42 items distributed across four dimensions: awareness, learning strategies and styles, team building, and motivation. Its development in the Indian context,

culturally and educationally comparable to Sri Lanka, emphasizes its potential relevance in South Asian settings.

Apart from these widely recognized scales, several other tools have been created to capture different aspects of SDL. For example, Oddi's Continuing Learning Inventory (OCLI) (1986) is a scale designed to measure the personal traits associated with self-directed learners (Merriam, 2001). This tool focuses more on personality characteristics than skill-based dimensions.

Furthermore, Pilling-Cormick (1996) developed the Self-Directed Learning Perception Scale (SDLPS) to assess the conduciveness of a learning environment to self-direction. This emphasizes the external factors that influence SDLR.

Another notable tool is the Learner Autonomy Profile (LAP), initially developed by Confessore & Confessore (1994) and later expanded by Carr (1999), Ponton (1999), Meyer (2001), and Derrick (2001), as cited in Guglielmino et al. (2004). This instrument is described as a battery of tests designed to measure behavioural intentions related to self-direction in learning (Guglielmino et al., 2004).

Additionally, various other instruments have emerged in the field of SDL to address diverse educational contexts and learner populations. These include the Self-Directed Learning Skills Scale (SDLSS) (Askin, 2015, as cited in Tekkol & Demirel, 2018), the Self-Directed Learning Competency Scale (SDLCS) (H. Lee & Mori, 2021), and the Self-Directed Learning Inventory (SDLI) (Suh et al., 2015).

Other tools, such as the Self-Directed Learning Ability Inventory (SDLAI) (Eul Kyoo Bae & Minyoung Lee, 2010) and the Self-Directed Learning with Technology Scale (SDLTS) (Timothy et al., 2010) have focused on technological dimensions of SDL. Instruments like the Self-Directed Learning with Technology for Young Students (SDLTYS) and the Self-Directed Learning Readiness Scale for Online Learning Environments (SDLRSOLE) have specifically targeted digital learning contexts. In addition, several tools have been developed to capture learning preferences and orientations, including the Learning Orientation Questionnaire (LOQ), the Bartlett-Kotrlik Inventory of Self-Learning (BISL), and the Learning Preference Assessment (LPA).

Culturally adapted versions have also been developed, including the Traditional Chinese Version of the Self-Directed Learning Readiness Scale (TC-SDLRS) (Deng, 1995), the Self-Rating Scale of Self-Directed Learning Readiness - Italian Version (SRSSDLIta) (Cadorin et al., 2013), and the Self-Rating Scale of Self-Directed Learning Readiness in Older People (SRSSDLO) (Cadorin et al., 2020). These instruments collectively reflect the growing recognition of SDL across educational levels, learning environments, and cultural contexts.

These instruments have significantly contributed to measuring SDLR in various learner populations and educational modalities. However, it is important to note that most of these tools were developed and validated in specific cultural and educational contexts such as China, Italy, and Korea. Therefore, their direct application in other

countries, such as Sri Lanka, may not yield accurate or meaningful results without proper adaptation.

In conclusion, while these tools offer valuable insights into the construct of SDLR, a compelling need remains for a context-specific scale tailored to the Sri Lankan setting, particularly for advanced-level students who are transitioning from secondary education to tertiary education or the workforce.

Cultural and Contextual Considerations in Scale Adaptation

Despite the widespread use of these instruments, their effectiveness is often limited when applied in culturally different or structurally distinct educational environments. Measurement tools must be carefully adapted to reflect the local language, culture, and learning context.

Beaton et al. (2000) emphasized the importance of cultural and linguistic adaptation when using instruments in cross-cultural research. Without this process, the tool may not accurately reflect the experiences or understanding of the target population. Adaptation includes rewording items, translating the scale if necessary, and testing its validity and reliability in the new setting.

In Sri Lanka, students at the advanced-level stage are at a crucial transition point between school and higher education. However, the current educational system in many regions still follows a traditional, teacher-centered approach. There are few structured efforts to encourage SDL, and students often depend heavily on teachers and tuition providers. As such, it is important to develop and validate a scale that reflects the unique learning environment and challenges faced by Sri Lankan advanced-level students.

Need for an SDLR Scale in the Sri Lankan School Context

In the Sri Lankan context, such cultural and systemic considerations are especially pertinent given the prevailing instructional approaches and learner characteristics. Although studies on SDL have been conducted in Sri Lankan universities (Bandara, 2017, 2022; Munasinghe et al., 2020; Samarasooriya et al., 2019) and teacher education programs (Danushka, 2022; Piratheeban, 2023), there is a lack of empirical research at the school level, particularly among advanced-level students.

This is a significant gap because advanced-level education plays a critical role in shaping students' readiness for university-level learning. Without a contextually specific and reliable tool to measure SDLR, researchers are unable to conduct empirical studies in the field of SDL.

Moreover, many Sri Lankan students face unique challenges, such as a lack of access to digital learning tools, limited exposure to learner-centered teaching methods, and pressure to perform well in high-stakes exams (National Education Commission, 2022). These factors may affect their SDLR. Therefore, adapting an existing SDLR scale to suit this population is both timely and necessary.

Rationale for the Current Study

Recognizing these challenges and the gap in available tools, this study aimed to adapt and validate the SDLR Scale for advanced-level students. The new scale, titled the Sri Lankan Self-Directed Learning Readiness Scale for advanced-level students (SL-SDLRS-AL), draws upon the work of Fisher et al. (2001, 2010), Williamson (2007), and Dullo et al. (2023). Items from these scales were selected, modified, and reworded to suit the Sri Lankan educational and cultural context. The scale includes five dimensions: awareness, learning strategies and styles, motivation, team building, and evaluation.

The current study also contributes to the field by following a rigorous validation process, including expert reviews, pilot testing, and reliability testing. It is hoped that this adapted instrument will provide a meaningful way to assess the SDLR of Sri Lankan advanced-level students and support efforts to foster independent, confident learners.

Methodology

For this purpose, the scale was initially adapted from the three selected scales: SRSSDL, SDLRNSE, and DSVS-SDLR. Then, to ensure content validity, two rounds of Delphi were conducted. Finally, to confirm construct validity and reliability, and to determine the scale's appropriateness for the local context, a pilot study was conducted. Details of these procedures are explained below.

Scale Adaptation Process

Among all the tools developed and adapted to measure SDLR, the SDLRSNE, SDLRS, and SSDLR have been identified as the most frequently used scales. Similarly, SRSSDL and SDLRNSE are recognized as the top-cited tools among those developed to measure SDLR (Piratheeban & Bandara, 2025).

To adapt existing SDLR scales to the context of advanced-level students in Sri Lanka, the review focused on these two widely used and highly cited tools: the SRSSDL by Williamson (2007), the SDLRSNE developed by Fisher et al. (2001), and one recently developed tool specifically for the South Asian context, the DSVS-SDLR developed by Dulloo et al. (2023). The details regarding these scales are presented in Table 1 below.

Table 1

Summary of Selected SDLR Scales

Author	Year	Name of the Scale	Number of items	Dimensions	Number of items for each dimension
Fisher et al.	2001	SDLRSNE	40	Self-management	13
				Desire for learning	12
				Self-control	15

Williamson	2007	SRSSDL	60	Awareness	12
				Learning strategies	12
				Learning activities	12
				Evaluation	12
				Interpersonal skills	12
Dulloo et al.	2023	DSVS-SDLR	42	Awareness	12
				Learning strategies and styles	15
				Motivation	06
				Team building	09

Based on this review, five core dimensions were selected for inclusion in the adapted scale: awareness, learning strategies and styles, motivation, team building, and evaluation.

The awareness dimension (Dulloo et al., 2023; Williamson, 2007) was retained as it captures learners' understanding of their own learning processes, including their strengths, limitations, and needs. This metacognitive insight is a foundational prerequisite for self-directed learning. The learning strategies and styles dimension (Dulloo et al., 2023; Williamson, 2007) was included to reflect learners' ability to apply, adapt, and monitor appropriate learning methods. This dimension merges both cognitive strategies and individual learning preferences, offering a holistic view of the learner's planning and regulatory capacity.

The motivation dimension (Dulloo et al., 2023; M. Fisher et al., 2001) was selected due to its pivotal role in initiating and sustaining SDL. It encompasses learners' intrinsic desire to engage in learning tasks, which is considered essential for autonomous engagement. Team building (Dulloo et al., 2023; Williamson, 2007) was included to acknowledge the importance of collaborative learning in the Sri Lankan educational context. While SDL emphasizes learner autonomy, the ability to work productively within peer groups is especially relevant in collectivist cultures. Lastly, the evaluation dimension (Williamson, 2007) was retained to capture learners' capacity for self-assessment, reflection, and monitoring of learning outcomes. This dimension supports the development of autonomy, responsibility, and continuous improvement.

Conversely, some dimensions present in the original scales were omitted to ensure conceptual clarity and avoid redundancy. Self-management and self-control, as found in the SDLRSNE, were considered to overlap significantly with the selected dimensions of learning strategies and evaluation. For example, the items included in SDLRNSE, such as *"I like to evaluate what I do", "I learn from my mistakes"*, and *"I evaluate my own performance",* can be considered under the dimension of evaluation. Likewise, items such as *"I solve problems using a plan", "I will alter my practices when presented with the facts",* and *"I set specific times for my study"* can be considered under the dimension of learning styles. These constructs, while important, are represented indirectly within the selected framework.

Similarly, the dimension of learning activities, as identified in the SRSSDL, was excluded because it falls under the dimension of learning strategies and styles. For

instance, the items included in SRSSDL, such as *"I rehearse and revise new lessons" and "I identify the important points when reading a chapter or an article,"* can be considered learning strategies and styles. The interpersonal skills dimension was also omitted, as it was regarded as broader and less specific to the collaborative functions addressed by the more targeted team-building dimension.

Hence, the selection of the five dimensions was guided by both theoretical consistency and contextual relevance. The final set of dimensions was deemed to provide a balanced representation of the cognitive, motivational, social, and reflective aspects of SDLR suitable for advanced-level learners in Sri Lanka.

Participant Selection

For the Delphi Study

Selecting suitable experts is a critical aspect of the Delphi method, as the quality and validity of the findings rely heavily on the insights provided by these participants (Ashton, 1986; Bolger & Wright, 1994; Parente et al., 1984). In this study, experts were selected using judgmental sampling, which is consistent with the criteria outlined by Adler and Ziglio (1996, as cited in Skulmoski et al., 2007). These criteria include relevant expertise and experience with the problem under investigation, willingness and ability to engage in the process, sufficient availability, and effective communication skills. Based on these considerations, 26 experts were invited to participate in the first round of the Delphi process, while a smaller group of nine experts was selected for the second round.

For the Pilot study

The minimal reasonable sample size for the pilot study must be a minimum of 30 (Bujang et al., 2024; Johanson & Brooks, 2010). According to Hertzog (2008), the minimal sample size for a pilot study in social science research must be 10 to 40 per group. On this basis, 64 students, including those from the streams of Bio Science, Physical Science, Arts, Commerce, Biosystems Technology, and Engineering Technology, were selected purposively from two educational zones, Vadamaradchy and Kilinochchi South, in the Northern Province, for the pilot study. Gender representation was also taken into consideration during the sample selection.

Data Presentation and Analysis

Delphi Round One

The scale for the Delphi round one encompassed 46 items, including 10 items for the dimension of awareness, 15 items for the dimension of learning strategies and styles, six items for the dimension of motivation, nine items for the dimension of team building, and six items for the dimension of evaluation.

Among the invited 26 experts, only 15 responded. Of these, one response was incomplete. Therefore, 14 responses were used to determine consensus. As suggested by Phillips et al. (2014), it was determined that items with consensus agreement below 80% should be excluded for the second round.

The item number and the consensus rate are shown in Table 2 below.

Table 2

Consensus Rate in the First Round of the Delphi

Awareness		Learning Strategies and Styles		Motivation		Team Building		Evaluation	
Item No	Consensus Rate	Item No	Consensus Rate	Item No	Consensus Rate	Item No	Consensus Rate	Item No	Consensus Rate
1.1	92.86	2.1	100.00	3.1	100.00	4.1	92.86	5.1	100.00
1.2	100.00	2.2	100.00	3.2	100.00	4.2	100.00	5.2	100.00
1.3	92.86	2.3	100.00	3.3	92.86	4.3	100.00	5.3	92.86
1.4	78.57	2.4	85.71	3.4	92.86	4.4	100.00	5.4	85.71
1.5	100.00	2.5	92.86	3.5	100.00	4.5	100.00	5.5	85.71
1.6	100.00	2.6	100.00	3.6	100.00	4.6	100.00	5.6	92.86
1.7	100.00	2.7	100.00			4.7	100.00		
1.8	100.00	2.8	100.00			4.8	92.86		
1.9	92.86	2.9	100.00			4.9	100.00		
1.10	92.86	2.10	92.86						
		2.11	100.00						
		2.12	100.00						
		2.13	100.00						
		2.14	92.86						
		2.15	92.86						

Based on the consensus rate, the item that fell below 80% of the rate, item 1.4, *'I make efforts to update the recent developments related to my studies'*, was excluded.

In addition to the above, although the remaining 45 items reached the consensus threshold, the following items were excluded based on the qualitative comments provided by the experts, taking into account the length of the questionnaire and how well they conveyed the same meaning. Details of these excluded items are shown in Table 3 below, along with their dimensions.

Table 3

Excluded Items Based on Qualitative Feedback from Delphi Round One

Dimension	Item No	Item
Awareness	1.6	*I can identify my weak areas in the subjects I study.*
	1.9	*I feel that I am overly dependent on teachers for my learning.*
	1.10	*I try to connect the new information I learn with my existing knowledge.*
Learning Strategies and Styles	2.1	*I learn better by discussing topics with my classmates in a study group.*
	2.2	*I find it helpful when my classmates explain topics to me.*

	2.5	*I study sincerely only after the school announces the exam dates.*
	2.6	*I change my approach to my studies based on what works best.*
	2.10	*I depend on my peers to point out the key points in a topic.*
	2.11	*I am able to comprehend a variety of information from the different subjects I study.*
	2.14	*I clarify my doubts by asking teachers questions.*
	2.15	*I prefer to study independently without relying on others.*
Team building	4.3	*I value feedback from teachers and peers to improve my learning outcomes.*
	4.4	*I am encouraged by the approach used for my studies.*
	4.5	*I am motivated to connect new topics with existing knowledge.*

Accordingly, three items in the awareness dimension, eight items in the learning strategies and styles dimension, and three items in the team building dimension were removed. As mentioned earlier, these items were excluded based on expert feedback indicating redundancy in meaning with other items and to reduce the length of the questionnaire.

The items in the motivation and evaluation dimensions remained unchanged. As a result, the final 31 items included six under the awareness dimension, seven under the learning strategies and styles dimension, six under the motivation dimension, six under the team building dimension, and six under the evaluation dimension, and these were considered for the second round of the Delphi process.

Delphi Round Two

The structure of the scale for the second round of the Delphi is shown in Table 4 below.

Table 4

Structure of the Scale of SDLR for the Second Round of Delphi

Awareness		Learning Strategies and Styles		Motivation		Team Building		Evaluation	
Item No in Round 1	Item No in Round 2	Item No in Round 1	Item No in Round 2	Item No in Round 1	Item No in Round 2	Item No in Round 1	Item No in Round 2	Item No in Round 1	Item No in Round 2
1.1	1.1	2.1	E	3.1	3.1	4.1	4.1	5.1	5.1

1.2	1.2	2.2	E	3.2	3.2	4.2	4.2	5.2	5.2
1.3	1.3	2.3	2.1	3.3	3.3	4.3	E	5.3	5.3
1.4	E	2.4	2.2	3.4	3.4	4.4	E	5.4	5.4
1.5	1.4	2.5	E	3.5	3.5	4.5	E	5.5	5.5
1.6	E	2.6	E	3.6	3.6	4.6	4.3	5.6	5.6
1.7	1.5	2.7	2.3			4.7	4.4		
1.8	1.6	2.8	2.4			4.8	4.5		
1.9	E	2.9	2.5			4.9	4.6		
1.10	E	2.10	E						
		2.11	E						
		2.12	2.6						
		2.13	2.7						
		2.14	E						
		2.15	E						
10	6	15	7	6	6	9	6	6	6
Total Number of Items									

Note: The E denotes 'Excluded'.

Among the nine experts invited, only eight responded. Therefore, based on the responses received from these eight experts, a content validity analysis was conducted based on I-CVI and S-CVI, as described by McCoach et al. (2013), to ensure and improve the content validity of the scale.

The calculated I-CVI results, based on aspects of relevance and clarity, are shown in Table 5 below.

Table 5

Expert Ratings of Content Validity: I-CVI and S-CVI Scores

Dimension	Item No	Relevant (Rating 3 or 4)	Irrelevant (Rating 1 or 2)	I-CVI	UA	Clarity (Rating 3 or 4)	Clarity (Rating 1 or 2)	I-CVI	UA	Interpretation
Awareness	1.1	8	0	1.00	1	8	0	1.00	1	Appropriate
	1.2	8	0	1.00	1	8	0	1.00	1	Appropriate
	1.3	8	0	1.00	1	8	0	1.00	1	Appropriate
	1.4	8	0	1.00	1	8	0	1.00	1	Appropriate
	1.5	8	0	1.00	1	8	0	1.00	1	Appropriate
	1.6	8	0	1.00	1	8	0	1.00	1	Appropriate
Learning Strategies and Styles	2.1	8	0	1.00	1	8	0	1.00	1	Appropriate
	2.2	8	0	1.00	1	8	0	1.00	1	Appropriate
	2.3	8	0	1.00	1	8	0	1.00	1	Appropriate

	2.4	8	0	1.00	1	8	0	1.00	1	Appropriate
	2.5	8	0	1.00	1	8	0	1.00	1	Appropriate
	2.6	8	0	1.00	1	8	0	1.00	1	Appropriate
	2.7	8	0	1.00	1	8	0	1.00	1	Appropriate
Motivation	3.1	8	0	1.00	1	8	0	1.00	1	Appropriate
	3.2	8	0	1.00	1	8	0	1.00	1	Appropriate
	3.3	8	0	1.00	1	8	0	1.00	1	Appropriate
	3.4	8	0	1.00	1	8	0	1.00	1	Appropriate
	3.5	8	0	1.00	1	8	0	1.00	1	Appropriate
	3.6	8	0	1.00	1	8	0	1.00	1	Appropriate
Team building	4.1	8	0	1.00	1	8	0	1.00	1	Appropriate
	4.2	8	0	1.00	1	8	0	1.00	1	Appropriate
	4.3	8	0	1.00	1	8	0	1.00	1	Appropriate
	4.4	8	0	1.00	1	8	0	1.00	1	Appropriate
	4.5	8	0	1.00	1	8	0	1.00	1	Appropriate
	4.6	8	0	1.00	1	8	0	1.00	1	Appropriate
Evaluation	5.1	8	0	1.00	1	8	0	1.00	1	Appropriate
	5.2	8	0	1.00	1	8	0	1.00	1	Appropriate
	5.3	8	0	1.00	1	8	0	1.00	1	Appropriate
	5.4	8	0	1.00	1	8	0	1.00	1	Appropriate
	5.5	8	0	1.00	1	8	0	1.00	1	Appropriate
	5.6	8	0	1.00	1	8	0	1.00	1	Appropriate
S-CVI/Average (Based on I-CVI)				1.00				1.00		
S-CVI/Average (Based on PR)				1.00				1.00		
S-CVI/Average (Based on UA)				1.00				1.00		

Note: I-CVI denotes the item-level content validity index, S-CVI denotes the scale-level content validity index, S-CVI/Average (Based on PR) indicates the scale-level content validity index calculated using the proportion relevance method, and S-CVI/Average (Based on UA) refers to the scale-level content validity index based on the universal agreement method, as proposed by Davis (1992), Lynn, (1986), Polit et al. (2007), and Polit & Beck (2006).

According to Zamanzadeh et al. (Zamanzadeh et al., 2015), items with an I-CVI below 0.70 should be eliminated, those scoring between 0.70 and 0.90 should be revised, and items with an I-CVI greater than 0.90 may be retained without modification. Similarly, Raharjanti et al. (2022) noted that an I-CVI value exceeding 0.79 indicates adequate relevance, and an S-CVI/Ave of 0.90 or higher reflects excellent overall content validity. Based on these criteria, all 31 items in the current scale achieved an I-CVI score of 1.00, suggesting excellent content validity (Raharjanti et al., 2022) and supporting the retention of all items without the need for revision (Zamanzadeh et al., 2015). Furthermore, the S-CVI based on I-CVI, PR, and UA also reached the maximum value of 1.00. As all items received perfect scores for both relevance and clarity, they were retained in full and included in the subsequent pilot testing phase.

Pilot Study

The responses of the 64 students were analysed to ensure the reliability and construct validity of the scale and to verify its appropriateness in the local context. The results of the pilot study are shown in Table 6 below.

Table 6

Pilot Study Results: Reliability and Construct Validity of 31-item scale

Dimension	Item No	No of Items	Corrected Item-total correlation	Cronbach's Alpha	Cronbach's Alpha if Item Deleted	Cronbach's Alpha
Awareness	1.1	06	.580	.743	.682	.848
	1.2		.506		.698	
	1.3		.475		.708	
	1.4		.520		.694	
	1.5		.485		.704	
	1.6		.341		.747	
Learning Strategies and Styles	2.1	07	-.011	.656	.708	
	2.2		.502		.573	
	2.3		.481		.582	
	2.4		.387		.632	
	2.5		.430		.601	
	2.6		.358		.623	
	2.7		.477		.584	
Motivation	3.1	06	.426	.722	.692	
	3.2		.425		.694	
	3.3		.595		.635	
	3.4		.489		.673	
	3.5		.493		.674	
	3.6		.307		.721	
Team building	4.1	06	.377	.645	.602	
	4.2		.488		.560	
	4.3		.010		.719	
	4.4		.440		.580	
	4.5		.520		.544	
	4.6		.450		.572	
Evaluation	5.1	06	.450	.729	.697	
	5.2		.496		.681	
	5.3		.577		.662	
	5.4		.507		.678	
	5.5		.364		.718	
	5.6		.409		.706	

The reliability coefficient, Cronbach's alpha, is a widely accepted measurement that calculates the internal consistency of a scale (Raharjanti et al., 2022). According to Straub et al. (2004) and Hinton et al. (2004), as cited in Taherdoost (2016), a reliability coefficient of 0.60 or higher is considered acceptable for pilot studies. According to Hinton et al. (2004, as cited in Taherdoost, 2016), reliability levels can be categorised into four groups: excellent (≥ 0.90), high (0.70–0.90), moderate (0.50–0.70), and low (≤ 0.50). Additionally, as cited in Said (2018), Wim et al. (2008) proposed that an alpha value in the range of 0.60 to 0.80 is acceptable. Here, as all

five dimensions have the Cronbach's alpha value greater than .60, it was concluded that the reliability level of each dimension is high. Furthermore, achieving a Cronbach's alpha value of .848 for the overall scale indicates that the reliability of this scale is also high.

The item-total correlation method and the inter-item correlation method can be used to assess the construct validity of a scale in the preliminary stage. For this study, the item-total correlation method was employed as a preliminary approach to assess the scale's construct validity, given the small sample size of the pilot study. While exploratory factor analysis (EFA) or confirmatory factor analysis (CFA) are more robust methods for establishing construct validity, they were not feasible with the current sample size (n = 64). Therefore, the present analysis provides only initial insights into the construct coherence of the items. The corrected item-total correlation value indicates the correlation between a specific item and the total scores of all other items on the scale. Robinson (2010) recommends that when the item-total correlation exceeds 0.50, the construct validity is established. Additionally, a score above 0.5 indicates a strong, positive correlation, while a score between 0.3 and 0.5 is considered acceptable (Raharjanti et al., 2022).

In the item analysis, eight items demonstrated strong correlations (≥ 0.50), and 21 items showed acceptable correlations (between 0.30 and 0.49). However, two items, Item 2.1, 'I feel interactive classroom discussions are more effective than merely teaching', and Item 4.3, 'I struggle to express my ideas clearly due to language barriers', with item-total correlations of -0.011 and 0.010, respectively, displayed negative and very low correlations. The negative value for Item 2.1 suggests a potential inconsistency with the overall construct, possibly due to misinterpretation or poor alignment with the other items. As such, both items were excluded from further analysis to improve the scale's internal reliability.

After the exclusion of the two items with low item-total correlations, the reliability and construct validity were recalculated for the remaining 29 items. The results of this refined analysis are presented in Table 7.

Table 7

Pilot Study Results: Reliability and Construct Validity of 29-item scale

Dimension	Item No (Old)	Item No (New)	No of Items	Corrected Item-total correlation	Cronbach's Alpha	Cronbach's Alpha if Item Deleted	Cronbach's Alpha
Awareness	1.1	1.1	06	.580	.743	.682	.848
	1.2	1.2		.506		.698	
	1.3	1.3		.475		.708	
	1.4	1.4		.520		.694	
	1.5	1.5		.485		.704	
	1.6	1.6		.341		.747	
	2.1	E	06	E	.708	E	

Learning Strategies and Styles	2.2	2.1		.525		.640
	2.3	2.2		.511		.645
	2.4	2.3		.412		.693
	2.5	2.4		.434		.671
	2.6	2.5		.325		.700
	2.7	2.6		.514		.649
Motivation	3.1	3.1	06	.426	.722	.692
	3.2	3.2		.425		.694
	3.3	3.3		.595		.635
	3.4	3.4		.489		.673
	3.5	3.5		.493		.674
	3.6	3.6		.307		.721
Team building	4.1	4.1	05	.458	.719	.679
	4.2	4.2		.466		.676
	4.3	E		E		E
	4.4	4.3		.518		.657
	4.5	4.4		.521		.653
	4.6	4.5		.429		.693
Evaluation	5.1	5.1	06	.450	.729	.697
	5.2	5.2		.496		.681
	5.3	5.3		.577		.662
	5.4	5.4		.507		.678
	5.5	5.5		.364		.718
	5.6	5.6		.409		.706

As shown in Table 7, all remaining items demonstrated acceptable item-total correlations (≥ .30), and the Cronbach's alpha values for each dimension exceeded the recommended minimum threshold of .60.

These results confirm that the refined 29-item SL-SDLRS-AL scale possesses satisfactory internal consistency and preliminary construct validity, supporting its suitability for further large-scale validation.Thus, the pilot analysis provided preliminary evidence of the SL-SDLRS-AL's construct validity and strong internal consistency, warranting further large-scale validation.

Summary of Delphi and Pilot Study Results

A summary of the key findings from the Delphi validation and pilot testing phases is presented below to consolidate the major outcomes of the scale development process. The validation of the Sri Lankan Self-Directed Learning Readiness Scale for Advanced-Level Students (SL-SDLRS-AL) demonstrated strong psychometric properties. Across two Delphi rounds, expert consensus was achieved, resulting in a refined 31-item scale with excellent content validity (I-CVI = 1.00; S-CVI/Ave = 1.00; S-CVI/UA = 1.00). The subsequent pilot study, conducted with 64 students, further confirmed the reliability and preliminary construct validity of the instrument. All five dimensions recorded Cronbach's alpha values above 0.6, while the overall

reliability coefficient reached .841, indicating high internal consistency. Two items with low item-total correlations (< .30) were excluded, resulting in a final 29-item scale distributed across five dimensions. These findings affirm that the adapted instrument is a valid and reliable tool for assessing the SDLR of advanced-level students in the Sri Lankan context. The finalized 29-item SL-SDLRS-AL scale is provided in Appendix A.

Discussion

Taken together, the findings from the Delphi rounds and pilot testing support the successful adaptation and validation of an SDLR scale tailored to the specific educational context and developmental needs of advanced-level students in Sri Lanka. Employing a rigorous three-phase validation process, which included two rounds of the Delphi technique and a pilot study, the adapted instrument demonstrated strong psychometric properties, particularly in terms of content validity, internal consistency, and construct validity.

The Delphi process played a critical role in refining the instrument by incorporating expert consensus to ensure theoretical alignment and cultural appropriateness. The involvement of experts across multiple rounds facilitated the identification and elimination of ambiguous or non-representative items, ultimately enhancing the relevance and clarity of the scale. All retained items exhibited high item-level content validity indices (I-CVI = 1.00), indicating unanimous agreement among experts regarding their relevance and clarity. Moreover, the scale-level CVI (S-CVI = 1.00) further confirmed the instrument's overall content validity.

The high reliability coefficients observed across all five dimensions support the internal consistency of the scale. Strong corrected item-total correlations further attest to the coherence of the scale, suggesting that the retained items contribute meaningfully to measuring the broader construct of SDLR in this student population.

This study addresses a notable gap in the Sri Lankan educational context: the lack of a culturally validated instrument to measure SDLR among advanced-level students. Given the increasing emphasis on independent learning skills and self-regulation in modern education, particularly in high-stakes academic environments, the development of such a tool is both timely and necessary. The adapted scale offers potential applications in educational research, classroom diagnostics, and the design of interventions aimed at enhancing learners' readiness for self-directed learning.

However, the study has limitations. The pilot testing was conducted on a relatively small sample, limiting the statistical generalizability of the findings. Furthermore, students from non-government schools were omitted, which may affect the generalizability of the scale. These factors warrant caution in interpreting the results and underscore the need for broader validation efforts.

Conclusion

In summary, SDLR is a critical competency that underpins students' ability to take ownership of their learning, adapt to academic demands, and engage meaningfully

with knowledge. Although SDLR has been extensively studied in international contexts, Sri Lankan educational settings, particularly at the advanced level, have lacked a validated, contextually appropriate tool to measure this construct.

This study sought to fill that gap by adapting and validating an SDLR scale specifically for advanced-level students in Sri Lanka. Through expert validation using the Delphi technique and preliminary psychometric evaluation via pilot testing, the scale has demonstrated strong content validity and internal consistency. The resulting instrument is both culturally sensitive and psychometrically sound, providing a valuable resource for researchers, educators, and policymakers aiming to foster autonomous learning behaviours in students.

Going forward, future research should focus on large-scale validation across diverse regions and linguistic groups within Sri Lanka. Additionally, further studies could explore the relationship between SDLR and other psychological or contextual variables such as self-efficacy, academic performance, institutional support, and the learning environment. Longitudinal studies may also help examine the predictive validity of SDLR in relation to academic and personal outcomes over time.

References

Ashton, R. H. (1986). Combining the judgments of experts: How many and which ones? *Organizational Behavior and Human Decision Processes*, *38*(3), 405–414.

Bandara, L. M. K. (2017). SELF-DIRECTED LEARNING (SDL): ACADEMICS' PERCEPTIONS TOWARDS STUDENTS' LEARNING. *Proceedings of 84th The IRES International Conference*, 7–9.

Bandara, L. M. K. (2022). Self-Directed Learning in Higher Education in Sri Lanka: Challenges in Implementing Policy. *Sri Lanka Journal of Education*, *1*(1), 89–104.

Beaton, D. E., Bombardier, C., Guillemin, F., & Ferraz, M. B. (2000). Guidelines for the process of cross-cultural adaptation of self-report measures. *Spine*, *25*(24), 3186–3191.

Bolger, F., & Wright, G. (1994). Assessing the quality of expert judgment. *Decision Support Systems*, *11*(1), 1–24. https://doi.org/10.1016/0167-9236(94)90061-2

Brockett, R. G., & Hiemstra, R. (1991). *Self-direction in adult learning: Perspectives on theory, research, and practice*. Routledge.

Bujang, M. A., Omar, E. D., Foo, D. H. P., & Hon, Y. K. (2024). Sample size determination for conducting a pilot study to assess reliability of a questionnaire. *Restorative Dentistry & Endodontics*, *49*(1), e3. https://doi.org/10.5395/rde.2024.49.e3

Cadorin, L., Bortoluzzi, G., & Palese, A. (2013). The Self-Rating Scale of Self-Directed Learning (SRSSDL): A factor analysis of the Italian version. *Nurse Education Today*, *33*(12), 1511–1516. https://doi.org/10.1016/j.nedt.2013.04.010

Cadorin, L., Grassetti, L., Paoletti, E., Cara, A., Truccolo, I., & Palese, A. (2020). Evaluating self-directed learning abilities as a prerequisite of health literacy among older people: Findings from a validation and a cross-sectional study. *International Journal of Older People Nursing*, *15*(1), e12282. https://doi.org/10.1111/opn.12282

Candy, P. C. (1991). *Self-direction for lifelong learning: A comprehensive guide to theory and practice* (1. ed). Jossey-Bass.

Cheng, S.-F., Kuo, C.-L., Lin, K.-C., & Lee-Hsieh, J. (2010). Development and preliminary testing of a self-rating instrument to measure self-directed learning ability of nursing students. *International Journal of Nursing Studies*, *47*(9), 1152–1158. https://doi.org/10.1016/j.ijnurstu.2010.02.002

Danushka, S. A. N. (2022). *BEST INSTRUCTIONAL STRATEGY FOR FLIPPED MODEL OF BLENDED LEARNING: A CASE STUDY WITH TECHNOLOGY TEACHERS IN A VIRTUAL LEARNING ENVIRONMENT*.

Davis, L. L. (1992). Instrument review: Getting the most from a panel of experts. *Applied Nursing Research*, *5*(4), 194–197. https://doi.org/10.1016/S0897-1897(05)80008-4

Deng, Y. L. (1995). Adult teaching and self-directed learning. *Wu-Nan, Taipei (in Chinese)*.

Development of the Self-Directed Learning Perception Scale. (1996). [University of Totranto]. http://www.collectionscanada.ca/obj/s4/f2/dsk3/ftp04/NQ41543.pdf http://hdl.handle.net/1807/13188

Dulloo, P., Singh, S., Vedi, N., & Singh, P. (2023). Development and implementation of a self-directed learning readiness scale for undergraduate health professional students. *Journal of Education and Health Promotion*, *12*(1). https://doi.org/10.4103/jehp.jehp_900_22

El-Gilany, A.-H., & Abusaad, F. E. S. (2013). Self-directed learning readiness and learning styles among Saudi undergraduate nursing students. *Nurse Education Today*, *33*(9), 1040–1044. https://doi.org/10.1016/j.nedt.2012.05.003

EUL KYOO BAE, & Minyoung Lee. (2010). The Development of the Self-Directed Learning Ability Inventory for Employees in HRD Companies. *The Korean Journal of Human Resource Development Quarterly*, *12*(3), 1–26. https://doi.org/10.18211/KJHRDQ.2010.12.3.001

Fisher, M. J., & King, J. (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

Fisher, M., King, J., & Tague, G. (2001). Development of a self-directed learning readiness scale for nursing education. *Nurse Education Today*, *21*(7), 516–525. https://doi.org/10.1054/nedt.2001.0589

Fooladvand, M., & Nadi, M. (2019). Validation of revisited self-directed learning readiness scale for nursing education among Iranian nursing and midwifery students. *Journal of Education and Health Promotion*, *8*(1), 266. https://doi.org/10.4103/jehp.jehp_82_19

Garrison, D. R. (1997). Self-Directed Learning: Toward a Comprehensive Model. *Adult Education Quarterly*, *48*(1), 18–33. https://doi.org/10.1177/074171369704800103

Grow, G. O. (1991). Teaching Learners To Be Self-Directed. *Adult Education Quarterly*, *41*(3), 125–149. https://doi.org/10.1177/0001848191041003001

Hertzog, M. A. (2008). Considerations in determining sample size for pilot studies. *Research in Nursing & Health*, *31*(2), 180–191. https://doi.org/10.1002/nur.20247

Hoban, J. D., Lawson, S. R., Mazmanian, P. E., Best, A. M., & Seibel, H. R. (2005). The Self-Directed Learning Readiness Scale: A factor analysis study. *Medical Education*, *39*(4), 370–379. https://doi.org/10.1111/j.1365-2929.2005.02140.x

Iwasiw, C. (1987). The role of the teacher in self-directed learning. *Nurse Education Today*, *7*(5), 222–227. https://doi.org/10.1016/0260-6917(87)90005-0

Jaleel, S., & O.M., A. (2017). A Study on the Relationship between Self Directed Learning and Achievement in Information Technology of Students at Secondary Level. *Universal Journal of Educational Research*, *5*(10), 1849–1852. https://doi.org/10.13189/ujer.2017.051024

Johanson, G. A., & Brooks, G. P. (2010). Initial Scale Development: Sample Size for Pilot Studies. *Educational and Psychological Measurement*, *70*(3), 394–400. https://doi.org/10.1177/0013164409355692

Justus, B. J., Rusticus, S. A., & Stobbe, B. L. P. (2022). Does Self-directed Learning Readiness Predict Undergraduate Students' Instructional Preferences? *The Canadian Journal for the Scholarship of Teaching and Learning*, *13*(1). https://doi.org/10.5206/cjsotlrcacea.2022.1.10879

Karataş, K., & Başbay, M. (2014). *Predicting Self Directed Learning Readiness Level In Terms Of Critical Thinking Disposition, General Self Efficacy and Academic Achievement*. *13*(3), 916–933.

Kasworm, C. (1983). Self-Directed Learning and Lifespan Development. *International Journal of Lifelong Education*, *2*(1), 29–46. https://doi.org/10.1080/0260137830020103

Khalid, M., Bashir, S., & Amin, H. (2020). Relationship between Self-Directed Learning (SDL) and Academic Achievement of University Students: A Case of Online Distance Learning and Traditional Universities. *Bulletin of Education and Research*, *42*(2), 131–148.

Knowles, M. S. (1975). *Self directed learning: A guide for learners and teachers* (11. print). Cambridge Adult Education.

Kumar, A. P., Omprakash, A., Mani, P. K. C., Swaminathan, N., Maheshkumar, K., Maruthy, K. N., Sathiyasekaran, B. W. C., Vijayaraghavan, P. V., & Padmavathi, R. (2021). Validation of Internal structure of Self-Directed Learning Readiness Scale among Indian Medical Students using factor analysis and the Structural equation Modelling Approach. *BMC Medical Education*, *21*(1), 614. https://doi.org/10.1186/s12909-021-03035-6

Leatemia, L. D., Susilo, A. P., & Van Berkel, H. (2016). Self-directed learning readiness of Asian students: Students perspective on a hybrid problem based learning curriculum. *International Journal of Medical Education*, *7*, 385–392. https://doi.org/10.5116/ijme.582e.021b

Lee, H., & Mori, C. (2021). Reflective practices and self-directed learning competencies in second language university classes. *Asia Pacific Journal of Education*, *41*(1), 130–151. https://doi.org/10.1080/02188791.2020.1772196

Lounsbury, J. W., Levy, J. J., Park, S.-H., Gibson, L. W., & Smith, R. (2009). An investigation of the construct validity of the personality trait of self-directed learning. *Learning and Individual Differences*, *19*(4), 411–418. https://doi.org/10.1016/j.lindif.2009.03.001

Loyens, S. M. M., Magda, J., & Rikers, R. M. J. P. (2008). Self-Directed Learning in Problem-Based Learning and its Relationships with Self-Regulated Learning. *Educational Psychology Review*, *20*(4), 411–427. https://doi.org/10.1007/s10648-008-9082-7

Lynn, M. R. (1986). Determination and quantification of content validity. *Nursing Research*, *35*(6), 382–386.

McCoach, D. B., Gable, R. K., & Madura, J. P. (2013). *Instrument development in the affective domain* (Vol. 10). Springer.

Merriam, S. B. (2001). Andragogy and Self-Directed Learning: Pillars of Adult Learning Theory. *New Directions for Adult and Continuing Education*, *2001*(89), 3–14. https://doi.org/10.1002/ace.3

Ministry of Education. (2020). *National Curriculum Framework for Secondary Education in Sri Lanka*. Ministry of Education, Sri Lanka. https://educationforum.lk/wp-content/uploads/2021/08/MoE_Framework_SecondaryEducation_2020Nov.pdf

Munasinghe, D. S., Sutha, J., & Perera, K. J. T. (2020). *A Study of Factors Influences on Self-Directed Learning of Undergraduates (With Special Reference to Sri Lankan Universities)*. Www.erepo.lib.uwu.ac.lk. http://www.erepo.lib.uwu.ac.lk/handle/123456789/1731

National Education Commission. (2022). *National Education Policy Framework (2020-2030)—Full Text* (p. 417). National Education Commission.

Oddi, L. F. (1986). Development and Validation of an Instrument to Identify Self-Directed Continuing Learners. *Adult Education Quarterly*, *36*(2), 97–107. https://doi.org/10.1177/0001848186036002004

Parente, F. J., Anderson, J. K., Myers, P., & O'brien, T. (1984). An examination of factors contributing to Delphi accuracy. *Journal of Forecasting*, *3*(2), 173–182.

Phillips, A. C., Lewis, L. K., McEvoy, M. P., Galipeau, J., Glasziou, P., Hammick, M., Moher, D., Tilson, J. K., & Williams, M. T. (2014). A Delphi survey to determine how educational interventions for evidence-based practice should be reported: Stage 2 of the development of a reporting guideline. *BMC Medical Education*, *14*(1), 159. https://doi.org/10.1186/1472-6920-14-159

Piratheeban, K. (2023). Unravelling the Nexus between Self-directed Learning Readiness and Academic Attainment: A Study on Student-Teachers in Sri Lanka. *Symposium Proceedings*, 147–157.

Piratheeban, K., & Bandara, L. M. K. (2025). Unpacking Self-directed Learning Readiness: A Mapping and Analysis of Measurement Scales. *Journal of Institute of Human Resource Advancement*, *12*(1), 109–149.

Polit, D. F., & Beck, C. T. (2006). The content validity index: Are you sure you know what's being reported? critique and recommendations. *Research in Nursing & Health*, *29*(5), 489–497. https://doi.org/10.1002/nur.20147

Polit, D. F., Beck, C. T., & Owen, S. V. (2007). Is the CVI an acceptable indicator of content validity? Appraisal and recommendations. *Research in Nursing & Health*, *30*(4), 459–467.

Raharjanti, N. W., Wiguna, T., Purwadianto, A., Soemantri, D., Indriatmi, W., Poerwandari, E. K., Mahajudin, M. S., Nugrahadi, N. R., Roekman, A. E., Saroso, O. J. D. A., Ramadianto, A. S., & Levania, M. K. (2022). Translation, validity and reliability of decision style scale in forensic psychiatric setting in

Indonesia. *Heliyon*, *8*(7), e09810. https://doi.org/10.1016/j.heliyon.2022.e09810

Ramli, N., Muljono, P., & Afendi, F. M. (2018). External Factors, Internal Factors and Self-Directed Learning Readiness. *Journal of Education and E-Learning Research*, *5*(1), 37–42. https://doi.org/10.20448/journal.509.2018.51.37.42

Robinson, J. (2010). *Triandis' Theory of Interpersonal Behaviour in Understanding Software Piracy Behaviour in the South African Context*. University of the Witwatersrand. https://books.google.lk/books?id=LwAgMwEACAAJ

Saeid, N., & Eslaminejad, T. (2016). Relationship between Student's Self-Directed-Learning Readiness and Academic Self-Efficacy and Achievement Motivation in Students. *International Education Studies*, *10*(1), 225. https://doi.org/10.5539/ies.v10n1p225

Said, T. E. H. (2018). Statistical analysis: Internal-consistency reliability and construct validity. *International Journal of Quantitative and Qualitative Research Methods*, *6*(1), 46–57.

Samarasooriya, R. C., Park, J., Yoon, S. H., Oh, J., & Baek, S. (2019). Self-Directed Learning Among Nurse Learners in Sri Lanka. *The Journal of Continuing Education in Nursing*, *50*(1), 41–48. https://doi.org/10.3928/00220124-20190102-09

Shohoudi, M., Zandi, K., Faridi, M. R., Fathi, G., & Safari, Z. (2015). Relationship of Teaching Efficiency with Academic Self-Efficacy and Self-Directed Learning among English Language Students: University Students' Perspectives. *Educational Research in Medical Sciences*, *4*(2).

Skulmoski, G. J., Hartman, F. T., & Krahn, J. (2007). The Delphi method for graduate research. *Journal of Information Technology Education: Research*, *6*(1), 1–21.

Stewart, R. A. (2007). Evaluating the self-directed learning readiness of engineering undergraduates: A necessary precursor to project-based learning. *World Transactions on Engineering and Technology Education*, *6*(1).

Suh, H. N., Wang, K. T., & Arterberry, B. J. (2015). Development and Initial Validation of the Self-Directed Learning Inventory With Korean College Students. *Journal of Psychoeducational Assessment*, *33*(7), 687–697. https://doi.org/10.1177/0734282914557728

Taherdoost, H. (2016). Validity and Reliability of the Research Instrument; How to Test the Validation of a Questionnaire/Survey in a Research. *International Journal of Academic Research in Management*, *5*(3), 28–36. https://doi.org/10.2139/ssrn.3205040

Tekkol, İ. A., & Demirel, M. (2018). An Investigation of Self-Directed Learning Skills of Undergraduate Students. *Frontiers in Psychology*, *9*, 2324. https://doi.org/10.3389/fpsyg.2018.02324

Timothy, T., Seng Chee, T., Chwee Beng, L., Ching Sing, C., Joyce Hwee Ling, K., Wen Li, C., & Horn Mun, C. (2010). The self-directed learning with technology scale (SDLTS) for young students: An initial development and validation. *Computers & Education*, *55*(4), 1764–1771. https://doi.org/10.1016/j.compedu.2010.08.001

Torabi, N., Abdollahi, B., Aslani, G., & Bahrami, A. (2013). A Validation of a Self-directed Learning Readiness Scale Among Preliminary Schoolteachers in Esfahan. *Procedia - Social and Behavioral Sciences*, *83*, 995–999. https://doi.org/10.1016/j.sbspro.2013.06.185

Torabi, N., Aslani, G., & Bahrami, A. (2013). A Study on Self-directed Learning among Preliminary School Teachers in Esfahan. *Procedia - Social and Behavioral Sciences*, *83*, 219–223. https://doi.org/10.1016/j.sbspro.2013.06.043

Wiley, K. (1983). Effects of a self-directed learning project and preference for structure on self-directed learning readiness. *Nursing Research*, *32*(3), 181–185.

Williams, B., & Brown, T. (2013). A confirmatory factor analysis of the S elf- D irected L earning R eadiness S cale. *Nursing & Health Sciences*, *15*(4), 430–436. https://doi.org/10.1111/nhs.12046

Williamson, S. N. (2007). Development of a self-rating scale of self-directed learning. *Nurse Researcher*, *14*(2), 66–83. https://doi.org/10.7748/nr2007.01.14.2.66.c6022

Zamanzadeh, V., Ghahramanian, A., Rassouli, M., Abbaszadeh, A., Alavi-Majd, H., & Nikanfar, A.-R. (2015). Design and Implementation Content Validity Study: Development of an instrument for measuring Patient-Centered Communication. *Journal of Caring Sciences*, *4*(2), 165–178. https://doi.org/10.15171/jcs.2015.017

Appendix A

Finalized 29-Item Sri Lankan Self-Directed Learning Readiness Scale for Advanced-Level Students (SL-SDLRS-AL)

Dimension	Item No	Item
Awareness	1.1	I am able to identify the topics or areas I need to focus on for my learning.
	1.2	I know effective methods that help me learn better.
	1.3	I am aware that I am responsible for my own learning.
	1.4	I know about various resources I can use for my learning.
	1.5	I can set my learning goals.
	1.6	I am able to manage my time effectively for learning.
Learning Strategies and Styles	2.1	I study my subjects regularly.
	2.2	The way I learn depends on the subject or topic I am studying.
	2.3	I prefer understanding the concepts before memorizing them.
	2.4	I can identify the key points of a topic on my own.
	2.5	I feel more interested in topics when they are connected to real-life examples.
	2.6	I reflect on what I have learned by taking short notes.
Motivation	3.1	I feel self-motivated to take responsibility for my learning.
	3.2	My exam marks motivate me to study harder.
	3.3	I keep track of my study progress.
	3.4	I value feedback from others to improve my learning outcomes.
	3.5	I am encouraged by the approach used for my studies.
	3.6	I am motivated to connect new topics with existing knowledge.
Team Building	4.1	I share knowledge and ideas with my classmates.
	4.2	I feel confident when participating in group activities with my peers.
	4.3	I value the opinions of my group members during discussions.
	4.4	I provide constructive feedback to my classmates.
	4.5	I feel confident taking the lead in group activities.

Evaluation	5.1	I evaluate my work myself before seeking feedback from my teachers.
	5.2	I value feedback from classmates on my work.
	5.3	I am motivated to learn by my previous learning experiences.
	5.4	I review my notes regularly to check my progress.
	5.5	I find learning new topics to be stimulating and challenging.
	5.6	The others' achievements motivate me to improve.

Acknowledgment

The authors wish to express their sincere gratitude to Williamson (2007), Dulloo et al. (2023), and Fisher et al. (2001, 2010) for granting permission to adapt their self-directed learning readiness scales. Their work provided a strong foundation for developing the Sri Lankan Self-Directed Learning Readiness Scale for Advanced-Level Students (SL-SDLRS-AL), which has been tailored to the local educational and cultural context.