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Exploring ESL Learners' Reading Strategies Based on the Theory of Reciprocal Determinism

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Abstract
The purpose of this study is to explore the relationship between reading strategies and Bandura's (1986) theory of Reciprocal Determinism. Previous research acknowledged the concept of Reciprocal Determinism as an effective teaching approach, however, limited research has been done to consider how reading is influenced by learners' personal factors, behavior and environment. Based on four Research Questions, the study explores the perceived use of reading strategies by 225 undergraduates who completed a critical reading course at a local university. These learners of English as a Second Language responded to an online questionnaire adapted from Mokhtari and Sheorey's (2002) Survey of Reading Strategies. Based on the learners' ratings of the reading strategies, namely Global Reading Strategies, Problem-Solving Strategies and Support Strategies, the findings revealed that there is a significant relationship between the learners' perceived use of reading strategies and the three factors of Reciprocal Determinism, namely Personal Factors, Behaviour and Environment indicating a cyclical effect that infuences learners' reading comprehension. This exploration of reading strategies through this theory has pedagogical implications on how reading is taught to scaffold and help learners increase metacognitive awareness and self-efficacy. Overall, this study contributes to a further understanding of the importance of taking into account the three factors in a reading environment and the relationship between reading strategies and RD. Future studies could be an extension of how the cyclical effects of Reciprocal Determinism and reading strategies could be strategically integrated into the teaching of skilled and unskilled readers and in other learning domains.
Keywords: Reciprocal Determinism, reading comprehension, self-efficacy, metacognition
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Introduction

Reciprocal Determinism (henceforth RD) is a central concept of Bandura's (1986) social learning theory. Also known as triadic reciprocality, RD is a model composed of three factors that influence learning: the individual's Personal Factors (including how they think and feel), their Environment, and the Behavior itself. According to Bandura (1989) not only does the environment influence a person's thinking, but their subsequent behavior influences their environment. In other words, the environment influences how a person thinks and feels, which in turn influences their behavior and impacts the learning environment. When applied in a learning domain, Woodcock and Tournaki (2022) explain that the RD approach simply involves breaking systems into parts or components. Based on this concept, reading comprehension would involve the breaking down of complex texts into more manageable parts. Thus, it is imperative to understand how students navigate the reading process by studying their perceived use of reading strategies to analyze the various components of reading such as vocabulary, contextual clues, main ideas or paragraph organization and so on to build their understanding and achieve the tasks given.

Furthermore, the current body of research presents multifaceted perspectives on the challenges or difficulties that learners encounter when reading academic texts while some suggest that apart from pedagogy, students' reading abilities are influenced by their prior knowledge, background or behaviour. These studies have prompted the potential exploration of students' reading strategies from the perspective of RD. As such, it is hoped that the findings of this study will contribute further to the existing knowledge and narrow the gap between pedagogy and RD within a reading environment. As emphasized by Snow and Matthew (2022), the RD perspective of breaking down texts into components could be a solution to assist students' reading comprehension, particularly among non-native English Language learners. Moreover, recent research by Chai and Ye (2024), Habok et al. (2024), Zubbir et al. (2023), Nisrina (2023), Machimana and Genis (2022), and Teng et al. (2022) concur that the concept of RD as a teaching approach is effective in enhancing learners' self-efficacy and metacognitive awareness during the reading process. Finally, exploring the use of reading strategies from the perspective of RD could keep instructors better informed of the factors needed in scaffolding and creating a reading environment that fosters positive outcomes for students.

Therefore, this study aims to explore how learners build their reading comprehension through the theory of RD by looking at their perceived use of reading strategies and their relationship to the three factors found in Bandura's (1986) theory. Since learners may use different strategies to comprehend the reading material, understanding how they navigate and employ the various reading skills can help instructors prepare the best approach to prompt, focus and improve their reading skills. The RD concept suggests there is a cyclical interplay between three factors, namely, Personal Factors (learners' attitudes, feelings or prior knowledge), Behaviour (actions) and the Environment (the learning situation). Depending on how the learners perceive their tasks, each factor may influence the other. As such, gaining an understanding of the reading skills that students perceived to have assisted them in this process of breaking the text into components to heighten their reading comprehension will prove to be insightful.

Four research questions were formulated to guide this research. Specifically, it seeks to answer the following questions:

- What are learners' perceptions of their personal factors during their reading process?
- What are learners' perceptions of their behaviour during their reading process?

- What are learners' perceptions of their environment during their reading process?
- What is the relationship between environment, personal factors and behaviour within a reading process?

Literature Review

There have been many past studies done to investigate how students have applied various reading strategies such as GRS, PSS and SS to improve their reading comprehension, motivate their reading habits or enhance their metacognitive awareness (Spires et al., 2022). However, in-depth studies that explore the relationship between these reading strategies and RD is still lacking. Interestingly though, current research that investigated the various reading difficulties or challenges of students learning English either as a second or foreign language share one common finding. Apart from pedagogy, they concurred that students' reading abilities are influenced by other factors such as the learning environment, personal factors or behaviour. Therefore, a review of recent studies done on reading strategies would still shed light to support the need to explore reading strategies based on the concept of RD.

In a recent study by Habok et al. (2024), students who were consciously aware of using GRS, PSS and SS demonstrated greater ability to self-regulate thus, improving their self-efficacy. Upon closer investigation, they found that these students took into account their past experiences as they went back and forth between the given texts to make connections. Their respondents also showed more positive attitudes towards the reading activities when they could relate to the context of the given texts. Their findings also supported Nurul and Parilah's (2017) study on TESL learners in an online critical reading environment. They found that students were able to apply the reading strategies more effectively when they connected their prior knowledge and experience to the given texts. As a result the respondents stated they felt more confident. This increased their self-efficacy during the reading process. These two studies implied that instructors should comsider the various types of texts that are used in class during a critical reading process. Similarly, Singh et al. (2023) concurred that learners' perception of the reading tasks could affect their reading abilities. They concluded that their learners' performance in a critical reading test was attributed to the way students linked the content to their prior knowledge. From their findings, learners who understood the texts performed better while those who did not, encountered reading difficulties. Thus, it can be concluded that RD factors do have an influence on learners' reading abilities and as such, lend support to the significance of exploring reading from this perspective.

Apart from teaching the various reading strategies to enable the students to take control of their learning, Yang et al. (2023) claimed that when RD factors are taken into account, a more holistic view of teaching the reading skill takes place. In concluding their study, they found that factors such as students' personalities, attitudes, and behavior played a significant role in motivating them to read. The implications of this study indicate that pedagogy alone is insufficient to improve students' reading skills. Other external factors could also affect their learning. Thus, there is a need to understand the cyclical effect of RD factors on reading strategies and how these factors could have an impact on learners' performance. In short, exploring reading strategies based on the theory of RD could provide invaluable pedagogical insights into enhancing learners' reading comprehension.

The present study also gained insight from the findings from a study by Zamani et al. (2023). They explored the learning styles of 122 ESL learners from an RD perspective which captured significant data. Their findings showed that the three variables—individual

characteristics, behavior, and the environment—positively impacted the respondents' learning abilities. The undergraduates identified rote learning or memorization as an effective tool in the initial stages, but they claimed that their learning styles were mostly influenced by their own atttudes, feelings or behavior. Additionally, they reported that external resources and the environment also played a crucial role in reinforcing their learning. Hence, Zamani et al. (2023) concluded that a significant relationship exists between these three variables and learners' learning abilities and suggested future research be conducted on the learning of partcular skill from the perspective of RD.

It is undeniable that one's environment, attitude or behaviour could impact one's learning. Bandura (1989) stated that these three factors have a cause and effect on learners' learning abilities. As highlighted in a study by Teng et al. (2021), a significant relationship exists between learners' metacognitive behaviour and their motivation to learn. Involving 620 respondents enrolled in a university online course, the study found that undergraduates who were highly motivated were more actively engaged in self-regulation during the reading process. Notably, these respondents stated that they relied on their prior knowledge to take appropriate actions to enhance their learning, thus, providing a glimpse of a potential relationship between reading strategies and RD.

Correspondingly, a recent study by Nisrina (2023) that investigated the reading strategies of 39 first-year undergraduates in a university in Aceh yielded similar insights. Employing the use of SORS, her findings quantified learners' effective use of GRS and PSS in achieving their reading tasks. However, they also relied frequently on SS strategies to enhance their reading comprehension. Nisrina (2023) concluded that in learning environments comprising non-native learners, understanding their background and attitudes has an impact on their learning behaviour. As a result, it was suggested that investigating the influence of these factors could offer a fresh perspective on studies related to reading strategies.

Despite their lack of extensive research on the impact of RD, these studies underscore the need to explore the way learners perceive and navigate their reading strategies from the perspective of RD. This could provide more insight into the strategies that influence their reading comprehension and how the RD factors impact their learning. Learners who possess a higher level of self-efficacy are more likely to be confident when approaching problems (the behavior), which means they may be more likely to be motivated and become successful in different situations (the environment) (Safian et al., 2023). Overall, based on the preceding review of past studies, it can be concluded that exploring learners' perceived use of reading strategies in relation to the three RD factors could have pedagogical implications in creating a more meaningful reading environment.

Conceptual Framework

Figure One shows the conceptual framework of this study. This study explores learners' perception of reading strategies using the theory of RD. According to Rahmat (2022), when it comes to online reading, exploring the reading environment through the concept of RD could possibly improve student engagement. According to Bandura (1989), RD is rooted in the social cognitive theory also by Bandura (1987) and it refers to the dynamic and reciprocal interaction of person (personal factors), environment (external social context), and behaviour (responses to stimuli to achieve goals) in a learning situation.

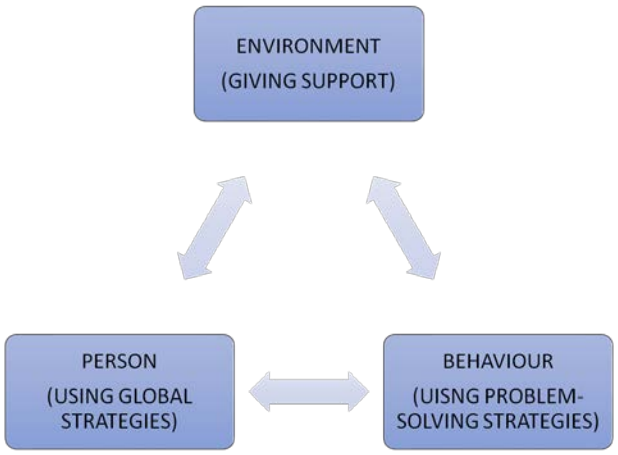


Figure 1. Conceptual framework of the study

Thus, in the context of this study, the factors in RD are used to scaffold Mokhtar & Sheorey's (2002) reading strategies as shown in the framework above.

Method

Participants

This quantitative study is done to explore learners' reading strategies from the perspective of RD. For the present study, a purposive sample of 225 participants, randomly selected from three Faculties namely the Accountancy/Communication and Media (46%) and the School of Business of Management (46%), responded to the online survey questionnaire. These respondents were required to pursue a course on English for Academic Reading for a whole semester to fulfil the requirements of their programme in a local public university. Using a 5-point Likert scale, the particioants were asked to rate their reading abilities. 70% of the respondents rated their reading skills as good while 29% felt their reading proficiency was average and only 1% considered themselves as having low reading proficiency skills. This implies that the respondents seem to have a high self-efficacy regarding their reading ability.

The instrument which is an online survey comprises 4 sections. As shown in Table One below, section A consists of items on demographic profile and section B covers 14 items on reading difficulties. Questions on reading strategies are found in Section C with 17 items on GRS, while section D has 8 items on PSS and section E has 9 items on SS. Based on a 5-point Likert scale whereby 1 indicated 'the least helpful' and 5 indicating 'the most helpful', respondents were required to rate the various skills that assisted them as they performed their reading tasks.

Table 1. *Distribution of items in the survey*

SECTION	RECIPROCAL DETERMINISM (Bandura,1989)	STRATEGY (Mokhtari & Sheorey's (2002)	
B	PERSON	Global (GRS)	17
C	BEHAVIOUR	Problem-Solving (PSS)	8
ED	ENVIRONMENT	Support (SS)	10
			35

Instrument

To explore the concept of RD within a reading process, the instrument adapted Mokhtari & Sheorey's (2002) SORS to gauge students' perception of the use of the various reading strategies that enhanced reading ability. Their model defines GRS as a stage which requires planning, thinking and managing the right strategies to enhance reading comprehension. This corresponds closely to the previewing stage of the reading process where students try to get a sense of what they are reading (Nurul & Parilah, 2017). Such skills relate to students' Personal Factors - their awareness of the strategies and the ability to think about the thinking when making their choices. Thus for this study, students' perceptions of Personal Factors will be measured by their use of GRS.

PSS, on the other hand, relates to the students' Behavior as they pay close attention to the text, adjust their reading speed, pause, reflect and think about the types of strategies they need to overcome any challenges to achieve their learning goal successfully. In fact, according to Nisrina (2023), the use of PSS helps students engage in the real act of reading a text, allowing the reader to get through the text skillfully. Thus, the use of PSS can initiate a behavioural change in the way that students take actions to allow them to navigate through the text more thoroughly and as a result, metacognitive awareness is heightened causing more engagement during the reading process. Therefore, for this study, students' perceptions of Behavioral Factors will be measured by their use of PSS.

Finally, SS mostly involves outside reference materials or external sources (Environment) including devices such as taking notes, using the dictionary or circling information to support their understanding of the text and applying it within the context of the environment. Thus, to gain more insight into the role of the Environment in reading strategies, students' perceptions of the Environment will be measured by their use of SS.

As illustrated in Figure Two below, the reliability test of the survey reveals a Cronbach alpha result of .948. This shows that the instrument used is reliable.

Reliability Statistics

Cronbach's Alpha	N of Items
.948	35

Figure 2. Reliability of survey

Procedure

To answer the research questions, the survey questionnaire was disseminated via the WhatsApp platform. Descriptive statistics involving means was used to describe the perceptions of the learners while inferential statistics Pearson correlation coefficient was used to show the relationship between reading difficulties and reading strategies. The results of the analyses are presented according to the research questions in the sections that follow.

Results

Findings for GRS and Personal Factors

This section presents data that answer the first Research Question 1 which is "What are learners' perceptions of their Factors during their reading process?" As mentioned earlier, in this study, The RD factor of Personal Factors is measured by GRS.

Table 2: *Mean for global reading strategies*

GRSQ1: I have a purpose in mind when I read	3.6
GRSQ2: I think about what I know to help me understand what I read	3.8
GRSQ3: I take an overall view of the text to see what it is about before reading it	3.6
GRSQ4: I think about whether the content of the text fits my reading purpose	3.5
GRSQ5: I review the text first by noting its characteristics like length and organisation	3.3
GRSQ6: When reading, I decide what to read thoroughly and what to ignore	3.3
GRSQ7: When the text becomes difficult, I pay closer attention to what I am reading	4
GRSQ8: I use tables, figures, and pictures in the text to increase my Understanding	3.4
GRSQ9: I use context clues to help me better understand what I am reading online	3.6
GRSQ10: I use typographical features like boldface and italics to identify key information.	3.6
GRSQ11: I critically analyse and evaluate the information presented in the text	3.4
GRSQ12: When reading, I check my understanding when I come across new information	3.9
GRSQ13: I try to guess what the content of the text is about when I read.	3.8
GRSQ14: I check to see if my guesses about the text are right or wrong	3.7
GRSQ15: I scan the text to get a basic idea of whether it will serve my purposes before deciding to read it.	3.5
GRSQ16: I critically evaluate the text before choosing to use its information	4.5
GRSQ17: When reading, I look for sites that cover both sides of an issue.	3.4

The data in Table Two show that students ranked GRSQ16 the highest (M=4.5), followed by GRSQ7 (M=4), GRSQ12 (M=3,9), GRSQ13 (M=3.8), GRSQ14 (M=3.7), GRSQ1 (M=3.6) and GRSQ3 (M=3.6). As postulated by Nurul and Parilah (2017), these strategies form part of the previewing stage of a reading process which is commonly applied to gain a general sense of the content and structure of the text. It is also the stage where students strategise the skills needed to overcome any reading difficulty. In this section, the influence of RD as a systematic process of breaking down the reading process into components begins as suggested by Woodcock & Turnaki (2022). As indicated in GRSQ2: "I think about what I know to help me understand what I read" implies a connection to prior knowledge (Personal Factors), while "GRSQ7: When the text becomes difficult, I pay closer attention to what I am reading" and "GRSQ16: I critically evaluate the text before choosing to use its information" shows the interplay of Personal Factors in influencing students' "Behaviour" to break the text into key components to gain a better understanding of the text. This interconnectedness is obvious, upon closer inspection of "GRSQ8: I use tables, figures, and pictures in the text to increase my Understanding", "GSQ9: I use context clues to help me better understand what I am reading online" and "GSQ17: When reading, I look for sites that cover both sides of an issue". The influence of seeking external resources (Environment) to increase their understanding highlights that students are consciously aware of the metacognitive strategies required to plan, think and manage the skills required to enhance their reading comprehension. Thus, a close connection can be seen between students' Personal Factors influencing their Behaviour as they think about the thinking when navigating through the text while applying GRS.

Findings for PSS and Behaviour

This section deals with the answers to Research Question 2 – "What are learners' perceptions of their behaviour during their reading process?". As explained earlier, the RD factor of Behaviour is measured by problem-solving strategies.

Table 3. *Mean for problem-solving strategies*

PSSQ1:I read slowly and carefully to make sure I understand what I am reading.	4
PSSQ2: I try to get back on track when I lose concentration	4.1
PSSQ3: I adjust my reading speed according to what I am reading	3.9
PSSQ4: I stop from time to time and think about what I am reading	3.6
PSSQ5: I try to picture or visualise information to help remember what I read	3.9
PSSQ6: When the text becomes difficult, I re-read it to increase my Understanding	4.2
PSSQ7: When I read, I guess the meaning of unknown words or phrases	3.8
PSSQ8: I can distinguish between fact and opinion in the texts	3.6

In Table Three, the students rated high scores for all the items listed in PSS, signifying their ability to act, pause and reflect to complete their reading task effectively. We can see a strong link between GRS and PSS whereby students ranked PSSQ6 the highest (M=4.2) "When the text becomes difficult, I re-read to increase my Understanding" followed by PSSQ1(M=4) "to read slowly and carefully to make sure I understand" and PSSQ2 (M=4.1) "to get back on track when I lose concentration", which imply active engagement in the reading process. The respondents' ranking of PSSQ3 (M=3.9) "to adjust my reading speed" PSSQ5 (M=3.9) "to picture or visualise information" and PSSQ 7 (M=3.8) "guess the meaning of unknown words" and PSSQ8 (M=3.6) "to distinguish between fact and opinion" lend support to the RD concept where students took appropriate actions (Behaviour) to break down the texts into manageable parts to increase their understanding when they encountered difficulties or challenges during their reading process. Similarly to Table Two, the data suggest that students applied PSS strategically and adjusted their behaviours to help them increase their reading comprehension to achieve their tasks successfully Thus, there is a strong interplay between Personal Factors (as seen in GRS) and Behaviour (as demonstrated in PSS) that reinforced students' metacognitive abilities to achieve their reading comprehension.

Findings for SS and Environment

This section provides insight into Research Question 3 – "What are learners' perceptions of their Environment during their reading process?". As explained earlier, the RD factor of the Environment is measured by Support Strategies.

Table 4. *Mean for support strategies*

SSQ1 I take notes while reading to help me understand what I read	3.4
SSQ2 When the text becomes difficult, I read aloud to help me understand what I read	3.7
SSQ3 I print out a hard copy of the online text and then underline or circle information to help me remember it.	3.4
SSQ4 I use reference materials (e.g. a dictionary) to help me understand what I read	3.7
SSQ5 I paraphrase (restate ideas in my own words) to better understand what I read.	3.5

SSQ6 I go back and forth in the text to find relationships among ideas in It	3.7
SSQ7 I ask myself questions I like to have answered in the text better	3.5
SSQ8 I skim the text to look for the main ideas of a passage	3.5
SSQ9 When reading, I translate from English into my native language	3.8
SSQ10 When reading, I think about information in both English and my mother tongue	3.7

The data in Table Four showed that all the skills were ranked almost equally helpful during the reading process. What is noteworthy is that when students encountered difficulties, the data recorded a higher mean scores for strategies such as "reading aloud" (SSQ2 (M=3.7) or "using reference materials like the the dictionary" (SSQ4 (M=3.7) for support. The data suggests a reliance on external sources which indicates the influence of RD factors coming into play as students "go back and forth to find relationships" (SSQ6 (M=3.7) to increase their understanding. Finally, based on SSQ9 (M=3.8) and SSQ10 (M=3.7), a strong dependence on translation from English into their native language is noted. Although 70% of the respondents rated their reading abilities in the English Language as good, the interference of the first language is still an issue among non-native speakers. This scenario still holds in the Malaysian context and supports Nisrina's (2023) conclusion whereby interference of the first language can still be an obstacle that inhibits ESL learners' reading abilities. Therefore it is imperative that learners know how to apply SS during the reading process. Interestingly, when learners are able to use external references to assist their reading comprehension, the RD influence of breaking the tests into manageable parts such reading aloud, checking vocabulary or paraphrasing takes place. This also implies ann increase in student engagement and metacognitive awareness.

Findings for Relationship between Reading Strategies and RD Factors

As for Research Question 4- "What is the relationship between environment with personal factors and behaviour within a reading process?", data is analysed using SPSS for correlations to determine if there is a significant relationship in the mean scores between environment, personal factors and behaviour. Results are presented separately in the following tables.

Firstly, the data in Table Five demonstrate an association between environment and behaviour. The correlation analysis shows that there is a significant association between environment and behaviour (r=.611**) and (p=.000). According to Jackson (2015), the coefficient is significant at the .05 level and positive correlation is measured on a 0.1 to 1.0 scale. A weak positive correlation would be in the range of 0.1 to 0.3, a moderate positive correlation from 0.3 to 0.5, and a strong positive correlation from 0.5 to 1.0. Thus, based on the ddata in Table Five below, a strong positive relationship between environment and behaviour exists.

Table 5. *Correlation between environment and behaviour*

Correlations

		TOTALMEAN ENVT	TOTALMEAN BEHAVIOUR
TOTALMEANENVT	Pearson Correlation	1	.611**
	Sig. (2-tailed)		.000
	N	225	225
TOTALMEANBEHAVIOUR	Pearson Correlation	.611**	1
	Sig. (2-tailed)	.000	
	N	225	225

**. Correlation is significant at the 0.01 level (2-tailed).

Statistically, in Table Six as displayed below, the correlation analysis shows that there is a significant association between Environment and Behaviour (r=.639**) and (p=.000) indicating a strong relationship between Environment and Personal factors.

Table 6. *Correlation between environment and personal factors*

Correlations

		TOTALMEAN ENVT	TOTALMEAN PERSON
TOTALMEANENVT	Pearson Correlation	1	.639**
	Sig. (2-tailed)		.000
	N	225	225
TOTALMEANPERSON	Pearson Correlation	.639**	1
	Sig. (2-tailed)	.000	
	N	225	225

**. Correlation is significant at the 0.01 level (2-tailed).

According to Jackson (2015), the coefficient is significant at the .05 level and positive correlation is measured on a 0.1 to 1.0 scale. A weak positive correlation would be in the range of 0.1 to 0.3, a moderate positive correlation from 0.3 to 0.5, and a strong positive correlation from 0.5 to 1.0. Therefore, there is a positive relationship between Environment and Personal Factors.

Finally, based on the data in Table Seven as illustrated below, there is an association between personal factors and behaviour.

Table 7. *Correlation between personal factors and behaviour*

Correlations

		TOTALMEAN PERSON	TOTALMEAN BEHAVIOUR
TOTALMEANPERSON	Pearson Correlation	1	.615**
	Sig. (2-tailed)		.000
	N	225	225
TOTALMEANBEHAVIOUR	Pearson Correlation	.615**	1
	Sig. (2-tailed)	.000	
	N	225	225

**. Correlation is significant at the 0.01 level (2-tailed).

The Correlation analysis in Table Seven show there is a significant association between personal factors and behaviour (r=.615**) and (p=.000). As stated by Jackson (2015), the coefficient is significant at the .05 level and positive correlation is measured on a 0.1 to 1.0 scale. A weak positive correlation would be in the range of 0.1 to 0.3, a moderate positive correlation from 0.3 to 0.5, and a strong positive correlation from 0.5 to 1.0. In sum, there is also a strong positive relationship between personal factors and behaviour.

Overall, the above results support Bandura's (1989) concept that there is a cyclical effect between the three RD factors and clearly, this cyclical effect is also prominent within a reading process as students become actively engaged throughout the various reading stages.

Discussion

This study investigates the impact of RD on reading strategies. By examining the students' perceived use of reading strategies, the study provides a better understanding of the multifaceted relationship between the RD factors – Personal Factors, Behaviour and Environment with the reading strategies – GRS, PSS and SS.

In answering RQ1– What are the learners' perception of their Personal Factors during their reading process, the findings suggest there is a significant influence of Personal Factors on students' use of reading strategies. Overall, the findings display strong student engagement as the learners interact and apply the GRS skills needed to plan, think and self-regulate. By systematically prioritizing the required skills, the process of RD is taking place as they break down the texts into manageable parts to build a comprehensive understanding. Throughout the whole process, the data also suggest that the use of GRS was effectively integrated with PSS and SS to overcome any reading challenges and increase their reading comprehension. As a result, learners' self-confidence and metacognitive awareness are enhanced. The findings also support Zamani et al's (2023) stand that teaching from an RD approach reinforces learning. Similarly, Habok et al. (2024) believe learners' self-confidence increases when their metacognitive abilities are increased during a reading process, thus creating a more positive attitude towards reading. Schober et al. (2018) also concur that self-efficacy has positive effects on learners' reading comprehension. In the present study, the learners' level of self-efficacy increased when they were able to relate to the texts and for those who encountered difficulties, they employed the appropriate strategies needed to increase their comprehension. This showed a positive and interactive relationship between GRS and Personal Factors. From an RD perspective, learners' Personal Factors had a direct influence on how they reacted (Behaviour) to the task and chose the support needed (Environment) to enhance their reading comprehension. Therefore, there was a clear indication of a positive relationship between the three variables in Bandura's (1986) concept of RD and the reading strategies. Nisrina's (2023) study also lends support to this relationship in that these strategies allow learners to take control of their learning, which can lead to increased motivation and a greater sense of achievement.

As for RQ 2 - What are the learners' perceptions of their Behaviour during their reading process?, the findings suggest there is a significant influence of PSS on learners' use of reading strategies. Interestingly, the data support Bandura's(1986) theory where students take appropriate actions (Behaviour) to increase their understanding when they encounter challenges in the task (Personal Factors). There was an increased level of metacognitive awareness to act, pause and reflect effectively during the reading process particularly when the students found the text challenging. This, in turn, caused them to take appropriate actions (Behaviour) which relates to the data in relation to Research Question 1. Students' actions or Behaviours to use appropriate GRS and PSS indicate a cyclical effect between reading strategies and RD factors. It also reflects a high level of student engagement during the reading process, As supported by Snow and Matthews (2022), the breaking down of the texts into manageable parts allows the respondents to adjust the use of PSS skills in accordance with their reading pace and to visualise the information in the reading context. Similarly, Yang et al (2023) stated that being able to use suitable PSS enabled the learners to take control of their learning, leading to enhanced motivation and a greater sense of accomplishment. This supports Nisrina's (2023) and Singh et al.'s (2023) study in that reading is an interactive process, where students' learning behaviour is always affected by their Personal

Factors such as prior knowledge or attitudes which exert influences on their Behaviour and the Environment. This brings us to Research Question 3.

In seeking answers to RQ 3 – What are learners' perceptions of their Environment during their reading process?, the findings on SS illustrate how students actively look for support from the Environment to overcome any reading challenges or difficulties. Students' level of metacognitive awareness to deal with the reading challenges is enhanced which corresponds to Nurul and Parilah's (2017) study which stressed the vital role SS plays in stimulating students' metacognitive awareness. The findings also demonstrate students' abilities to self-regulate when external resources are readily available. This is supported by Habok et al.'s (2024) and Schober et al's (2018) investigations which corroborate the cyclical effects between students' intrinsic and extrinsic factors that influence learning.

In the final analysis, the results revealed that there is a cyclical relationship between the the three factors mentioned in RQ 4 which is "What is the relationship between Environment, Personal Factors and Behaviour within a reading process?" The findings underscore this interactive relationship between reading strategies and RD factors. As supported by Zamani et al. (2023), studying how students navigate and apply reading strategies through the theory of RD at various levels to enhance their reading comprehension can help instructors scaffold and foster learners' reading abilities more effectively. While students are aware of the various reading strategies at their disposal, taking into account the RD factors can increase students' competence levels. Together, these factors result in a cyclical effect that enhances self-efficacy and engagement. Findings from Teng et al. (2021) also support this relationship. Undoubtedly, the process of reading is significantly influenced by learners' past experience, prior knowledge and environment which, in turn, exert learners' choices or actions to achieve their learning goals. As such, a more holistic reading process takes place.

Overall, this study contributes to a further understanding of the importance of taking into account the three factors which were not extensively investigated in other studies in terms of the relationship between reading strategies and RD.

Conclusion

This study aims to explore how readers build their reading comprehension through the theory of RD by looking at the learners' perceived use of reading strategies and their relationship to the three factors expounded in Bandura's (1986) concept of RD

.The cyclical effect of reading strategies and RD factors have created more opportunities for learners to think critically, self-regulate and become more engaged in the reading task as they navigate through the reading process. When reading is taught through the lens of RD, reading becomes a more interactive process. As supported by Zubbir et al. (2023), reading is not an isolated activity but involves students' prior knowledge (Environment), experience, and attitudes (Personal Factors), which affect their learning behaviour.

Although reading instructors cannot control learners' personal factors, they can create a positive learning environment that addresses the environmental factors outlined in Bandura's (1986) concept. By supporting learners particularly those with low self-efficacy, educators can enhance their willingness to stay engaged and motivated in the reading process, thereby influencing their behaviour positively. Thus, instructors must adapt their teaching methods, materials, and resources to align with the RD theory to maximize student's learning potential.

The researchers suggest several future research directions based on the results of this study. First, further investigations should examine learners' reading strategies and the theory of RD from both qualitative and quantitative perspectives to identify specific skills that can be taught explicitly to learners in a reading classroom. Second, future studies could explore other subject matters beyond the current study to compare and understand how skilled and unskilled readers' use of different reading strategies interacts with the factors in RD to improve their reading abilities. Such research could offer practical recommendations for educators and instructors to enhance learners' awareness and application of reading strategies.

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