



## Examining the Beliefs and Practices of Pakistani Secondary School ESL Teachers about Reading Instruction

Mahboob Ali Naper<sup>1</sup>, Muhammad Younus<sup>2</sup>, Muhammad Zaman<sup>3</sup>

1. Lecturer, Department of English, Benazir Bhutto Shaheed University Lyari, Karachi  
Email: [napermahboobali@gmail.com](mailto:napermahboobali@gmail.com)
2. Assistant Professor, Department of English, Iqra University Karachi,  
Email: [younis.farid@iqra.edu.pk](mailto:younis.farid@iqra.edu.pk)
3. Lecturer, Department of English, Federal Urdu University of Arts, Sciences & Technology University in Karachi,  
Email: [zamanhashmi366@gmail.com](mailto:zamanhashmi366@gmail.com)

### Abstract

This study investigates the beliefs and instructional practices of ESL teachers in public and private secondary schools in Karachi, Pakistan, with a focus on reading instruction. Using a quantitative research design, data were collected through the Teachers' Orientation to Reading Instruction Questionnaire (TORI) from 160 ESL teachers (80 public, 80 private) and classroom observations from a sub-sample of 40 teachers (20 public, 20 private). Descriptive statistics and independent samples t-tests were used to analyze the data. Findings reveal that while there is no significant difference between public and private school teachers in their text-based and competence-based beliefs, significant differences exist in actual classroom practices. Public school teachers more frequently employ text-based reading strategies, whereas private school teachers are more inclined toward competence-based, student-centered approaches. These findings underscore disparities in teaching practices between the two sectors and highlight the need for targeted teacher training programs to enhance reading instruction, particularly in public schools. The study contributes to the limited literature on reading instruction in Pakistan and provides direction for future research and policy reforms in ESL education.

**Keywords:** Beliefs, Practices, Reading Instruction, Competence

### Introduction

Teachers' beliefs play a vital role in shaping classroom practices, particularly in language learning environments. These beliefs influence not only how teachers design and deliver lessons but also how students perceive and engage with learning tasks (Sheorey, 2006). The way teachers view their roles and responsibilities has a direct impact on their instructional choices, which in turn affects students' learning strategies and outcomes (Prosser, Trigwell, & Taylor, 1994; Patrick, 2000). In fact, teacher beliefs are so influential that they can affect student achievement across various domains, including language acquisition (Kaymakamoglu, 2018). Among the four core language skills, reading holds a central place in language classrooms, especially in contexts where English is taught as a second language (Noor, 2011; Bakken & Lund, 2018). Reading not only supports the development of vocabulary and grammar but also enhances cognitive skills such as critical thinking, memory, and information processing through activities like scanning and skimming (Channa, Nordin, & Chandio, 2016). However, in Pakistan, reading remains one of the most neglected aspects of English language education (Muhammad, 2011), and students often struggle with even basic comprehension tasks by the time they reach higher education. Numerous

challenges hinder effective reading instruction in ESL classrooms. These include students' limited vocabulary, lack of motivation to read, and overcrowded classrooms (Rasheed et al., 2011; Bhatti, 2013). Teachers also report low student engagement, poor reading comprehension, and a general disinterest in developing reading habits (Fareed, Javed, & Awan, 2018). Additionally, research indicates that many English teachers in Pakistani schools rarely use English in classroom interactions, reducing students' exposure to authentic language use (Kamhi-Stein & Mahboob, 2005) and to facilitate learning teachers must have grip over the subject (Naper, Younus, & Mangrio, 2024). Finally, the lack of opportunities for independent or extensive reading further limits students' growth into confident, autonomous readers (Muhammad, 2013). At the postsecondary level, these issues result in significant challenges, as numerous students lack the requisite reading and writing skills necessary for academic success. A multitude of individuals struggle to comprehend intricate sentence structures, unfamiliar vocabulary, and culturally nuanced content due to a lack of foundational knowledge and an insufficient reading culture (Fareed, Ashraf, & Bilal, 2016; Channa et al., 2016). Ahmad and Malik (2023) conducted a recent study indicating that ESL students at Pakistani universities continue to struggle with reading comprehension due to outdated pedagogical methods and insufficient access to appropriate reading materials.

Due to these issues, it is essential to examine teachers' perceptions of reading instruction. Understanding educators' perspectives on reading, its pedagogical approaches, its role in language acquisition, and the factors contributing to its effectiveness helps enhance instructional practices and student performance. Altering these assumptions is a crucial step towards transforming classroom practices and fostering a more robust reading culture in ESL environments.

### **Objectives of the Study:**

- To examine whether public and private school ESL teachers differ significantly in their beliefs regarding reading instruction.
- To explore whether there is a notable difference in the instructional practices related to reading between ESL teachers in public and private schools.

### **Research Questions:**

1. Do ESL teachers in public and private schools hold significantly different beliefs about reading instruction?
2. Are there significant differences in the reading instruction practices of ESL teachers from public and private schools?

### **Significance of the Study:**

The study is significant since it examines a relatively underexplored subject in Pakistan: the perspectives and pedagogical approaches of secondary school ESL teachers about reading instruction.

- The study examines the disparities between public and private school educators to identify deficiencies and advantages in existing pedagogical approaches.
- The findings of this research can elucidate which aspects of reading education require greater focus and enhancement. These findings can assist teacher educators in developing more effective and targeted ESL teacher training programs, emphasizing the enhancement of reading instruction.
- This study may assist secondary school students in Pakistan in enhancing their reading comprehension by identifying and rectifying instructional deficiencies.
- In the end, the study might help other researchers improve ways students learn to read and it may also guide officials when making improvements to English language education in the country.

## **Literature Review**

Teaching how to read is vital in ESL education and this is especially important in Pakistan due to the key role English holds for advancement. ESL educators play a big role in shaping how well students can read and write. They help students be more interested in what they read and improve their reading abilities (Khan & Javed, 2024).

## **Adult Teachers' Views and the Way They Teach**

What teachers believe about reading instruction strongly affects their daily teaching methods. Nevertheless, what teachers think they do and what they actually do can be very different? Zaman and colleagues (2025) found that although Karachi-based ESL educators stated they supported Communicative Language Teaching (CLT) principles, these beliefs did not fully reflect what they did in class. Different factors that contributed were the limits faced by the institution and how much was available to them. It shows that it can be hard to carry out teaching ideas in the classroom.

## **Problems with Providing Reading Instruction**

Many problems in teaching reading in Pakistan are caused by restricted vocabulary in students, a lack of motivation and teaching large classes. In the study by Hasan et al. (2023), students' interest in reading improved a lot after they got direct instruction in reading tasks. Reading out loud was found to improve the reading skills of Grade 2 ESL learners in Lahore in a study by Shoukat et al. (2024). It suggests that Involving the students and making teaching more interactive may overcome pedagogical problems.

## **Comparative Analysis of Public and Private Educational Institutions**

There are difficulties in reading education because of the differences between public and private schools in Pakistan. Because public schools have crowded classes and fewer materials, the quality of reading instruction may suffer. Still, private schools can have more resources, but they also encounter problems like making sure teachers reflect the best practices. It is necessary to consider these differences to improve reading instruction in several types of schools.

## **Teacher Training Matters**

It is very important to train and develop teachers to improve reading instruction. Khurram (2023) noted that metacognitive education makes ESL college students more aware of the strategies they use when reading. This makes clear why metacognitive skills should be emphasised in teacher preparation courses. Based on Imran et al.'s (2024) study, lack of proper professional training was found to be a key obstacle to high-quality English teaching at the primary level in Pakistan. They argued for creating wide programs to help teachers improve. The research reveals that Pakistan's ESL educators see the importance of teaching reading effectively; however, they rarely manage to deliver it since their actions do not match their beliefs, problems in their schools and lack of training. To raise literacy in Pakistani schools, it is important to deal with these obstacles using tailored professional support and interventions for teachers.

## **Methodology**

The study collected information through surveys and interviews, then analyzed the perspectives and daily activities of teachers who teach reading to English learners. The study used Lau's (2007) Teachers' Orientation to Reading Instruction Questionnaire (TORI) to assess the views of teachers regarding reading instruction. All 26 items on the instrument were equally broken up into the two main categories of reading instruction: those based on text and those focused on competency. One hundred and sixty ESL educators, made up of both men and women, who work at secondary schools in Karachi, Pakistan, finished the questionnaire.

About 40 experienced ESL educators were selected for rigorous observations to observe their classroom practice. I observed each teacher handling reading instruction in separate classes to compare and count their strategies. An observation checklist was built by adapting Karimi et al.'s (2014) framework and using it for our research. This way of thinking groups practices into two types: those that depend on texts and those that focus on competence. Bowl uses 14 parts, giving seven to each department, designed to keep track of the use of various instructional approaches. Observers employed a 4-point Likert scale to evaluate the frequency of each practice, where 1 indicated "Never" and 4 signified "Frequently." Upon collecting the data, all responses from the questionnaires and observation checklists were meticulously entered into SPSS (version 22) for statistical analysis. Descriptive statistics were employed to identify patterns of concordance and discordance in the data. We employed inferential statistical techniques, including independent samples t-tests and Pearson correlation analysis, to identify significant differences and relationships between the attitudes and behaviours of ESL teachers.

### Findings of the Study

The study investigated the beliefs and practices of public and private secondary school ESL teachers about reading instruction. TORI questionnaire adopted from Lau, 2007 was used to investigate beliefs of the teachers. The questionnaire investigates two aspects Text-based instruction and Competence-based reading instruction. Reliability was 0.80, and 0.78 for the beliefs regarding text-based reading, instruction and competence-based reading instruction respectively. Moreover, practices were examined through observational checklist adopted from Karimi, 2016. The reliability for the text-based practices was noted 0.79, and for competence-based practices, reliability was 0.78. To explore the results of the first question, descriptive statistics of both public and private school teachers about text-based and competence-based reading instruction were found which are given below:

**Table 1.1 Public school vs private school teachers' text-based beliefs and competence-based beliefs about reading instruction**

Orientation Type	School Type	N	Mean	Std. Deviation
<b>Text-based</b>	Public	80	39.36	5.76
	Private	80	39.55	4.44
<b>Competence-based</b>	Public	80	43.40	5.04
	Private	80	44.32	4.64

The above table presents the mean scores and standard deviations for ESL teachers' beliefs regarding reading instruction, categorized under **text-based** and **competence-based** orientations, across public and private secondary schools in Karachi. The results show that for **text-based instruction**, the mean score for public school teachers ( $M = 39.36$ ,  $SD = 5.76$ ) is nearly identical to that of private school teachers ( $M = 39.55$ ,  $SD = 4.44$ ), indicating minimal difference in their beliefs about traditional, text-centered reading approaches. In the **competence-based instruction** category, private school teachers ( $M = 44.32$ ,  $SD = 4.64$ ) show slightly higher mean scores than public school teachers ( $M = 43.40$ ,  $SD = 5.04$ ). This suggests that private school teachers may be somewhat more inclined toward student-centered, skill-focused instructional practices compared to their public counterparts.

Although the differences are not large, the descriptive data imply a marginal preference among private school ESL teachers for more competence-based reading instruction approaches. However, further inferential statistical analysis (e.g., t-tests) would be needed to determine whether these observed differences are statistically significant.

**Table 1.2 Results of Independent samples t-test for public and private school teachers' reading beliefs (text-based)**

Independent samples t-test	T	Df	Sig. (2-tailed)
Equal variances assumed	-.238	158	.760

This table compares the **mean scores** of **two independent groups** public and private school ESL teachers on beliefs of the teachers about reading instruction. The calculated t-value (**t = -0.238**), represents the difference in group means in terms of standard error units. A small absolute value like this indicates that the difference between the groups is very small. The p-value 0.760 is **greater than 0.05**, therefore, the result is **not statistically significant**. There is **no statistically significant difference** between the public and private school ESL teachers in their beliefs regarding reading instruction. In other words, **both groups hold similar views** to reading instruction.

**Table 1.3 Results of Independent samples t-test for public and private school teachers' reading beliefs (competence-based)**

Independent sample t-test	T	Df	Sig. (2-tailed)
Equal variances assumed	-1.202	158	.183

The above table compares the means of two independent groups **public and private school ESL teachers** on a **competence-based reading beliefs**. The **t-value (t = -1.202)**, shows the standardized difference between the two group means. A t-value of -1.202 indicates a small to moderate difference, but it's not large enough to suggest significance without further evidence. Moreover, the **p-value 0.183 > 0.05**, the result is **not statistically significant**. There is **no statistically significant difference** between the beliefs or practices of **public and private school ESL teachers** on the measured aspect. The observed difference in means could be due to **random variation** rather than a true difference in population. In order to find out the classroom practices of both public and private school ESL teachers toward text-based reading instruction and competence-based reading instruction, 40 classroom observations 20 from each group, i.e. public school and private school ESL teachers were observed. Descriptive statistics of practices for both groups the teachers are presented in the following table.

**Table 1.4 The descriptive statistics for public and private school teachers on actual reading instructional practices**

Category	School	N	Mean	Std. Deviation
Text-based	Public	20	22.100	3.765
	Private	20	19.600	2.415
Competence-based	Public	20	18.700	3.040
	Private	20	22.300	3.200

**In the above table, results about text based reading practices shows the Public school teachers (M = 22.10) scored higher than private school teachers (M = 19.60).** This suggests that **public school teachers tend to rely more on traditional, text-focused reading instruction**. The difference in standard deviation indicates **more variation** among public school teachers. **Furthermore, regarding competence based reading practices, it shows that private school teachers (M = 22.30) scored higher than public school teachers (M = 18.70).** This suggests that **private school teachers use more skill-based, student-centered approaches** to reading instruction. The scores are consistent with earlier trends, showing private school teachers lean more toward modern pedagogical approaches i.e., **public school teachers favor text-based approaches and private school teachers favor competence-based approaches**. This trend may highlight

differences in institutional training, teaching philosophy, or resource availability between the two school systems. A follow-up inferential test (like an independent t-test) would help determine whether these differences are statistically significant.

**Table 1.5 Results of Independent samples t-test for public and private school teachers on actual reading instructional practices (text-based)**

Independent sample t-test	T	df	Sig. (2-tailed)
Equal variances assumed	2.870	38	0.007

The above tables indicates the **t-value is 2.870**, and the **p-value** (Sig. 2-tailed) is **0.007**, which is **less than the standard alpha level of 0.05**. There is a **statistically significant difference** between public and private school ESL teachers in terms of the text-based reading practices. Since the **mean scores** show that **private school teachers scored higher on competence-based practices**, this result confirms that **private school teachers are significantly more likely to use competence-based approaches** compared to public school teachers. The observed difference in instructional practices between public and private school ESL teachers is **not due to chance**, and highlights a **real difference** in classroom behavior and possibly teacher training or institutional priorities.

**Table 1.6 Results of Independent samples t-test for public and private school teachers on actual reading instructional practices (competence-based)**

Independent sample t-test	T	df	Sig. (2-tailed)
Equal variances assumed	-4.210	38	0.000

The **t-value** is **-4.210**, and the **p-value** (Sig. 2-tailed) is **0.000**. Since the **p-value is less than 0.05**, the result is **statistically significant**. There is a **significant difference** between public and private school ESL teachers regarding the variable measured **competence-based practices**, given the negative t-value direction. The **negative t-value** suggests that **public school teachers scored significantly higher** than private school teachers on this variable. This result indicates a **real, statistically significant difference** in teaching practices between the two school types, with public school teachers more frequently employing text-based instruction than their private school counterparts.

## Discussion

This study aimed to explore and compare public and private secondary school ESL teachers' beliefs and classroom practices regarding reading instruction in Karachi, Pakistan. The findings indicate a nuanced understanding of how beliefs and practices are aligned (or misaligned) between the two educational sectors. The results for **text-based beliefs** suggest no statistically significant difference between public and private school teachers. Both groups reported relatively similar orientations toward traditional, text-centered reading approaches. This is consistent with prior literature which highlights that foundational beliefs about reading instruction, especially those rooted in conventional pedagogies, tend to remain consistent across different institutional types (Borg, 2011). However, a slight but non-significant inclination was observed among private school teachers towards **competence-based beliefs**, suggesting they may be marginally more open to skill-oriented, student-centered reading instruction. This aligns with findings from Lau (2007), who emphasized the importance of teacher orientation in shaping the nature of classroom instruction.

Significant modifications occurred in classroom procedures. Public school teachers typically structured their lessons out of textbooks, where private school teachers put more emphasis on hands-on skills. Their

findings accord with those from Kamhi-Stein and Mahboob (2005) study. It was underlined that teachers often differ more in their teaching methods than in their spoken beliefs, mainly if they do not have the same training, resources or support. Some private school teachers depend on competency-based teaching which may be possible due to more learning activities, fewer students at once or school rules preferring interactivity (Rahman, 2019). Instead of using engaging teaching methods, some public school teachers may use textbooks more often in response to large classes, not enough professional growth opportunities or strict rules in the curriculum (Fareed, Ashraf, & Bilal, 2016). According to Channa, Nordin and Chandio (2016), the methods followed in Pakistani public schools delay reading development of the students. There is often a difference between what is said about education and what happens in schools and this difference suggests that systemic challenges stop the true ideas from being used in classrooms (Richardson, 1996).

## **Conclusion**

This study adds to the little-known field of ESL reading instruction in Pakistan by looking at and contrasting the beliefs and practices of teachers in public and private schools. The results show that the two sectors have similar ideas about how to teach reading, but their actual practices are very different. Private school teachers are more likely to use student-centered, competence-based teaching methods, while public school teachers are more likely to use traditional, text-based methods. These discrepancies show that public schools need to change their policies to improve teacher preparation, especially when it comes to fostering competence-based teaching methods. Filling up these gaps could help students understand what they read better and improve their language skills in general.

It fills a gap in the study of ESL reading in Pakistan by evaluating and comparing the ideas and approaches of teachers in both public and private schools. There are similar beliefs about teaching reading in both sectors, but in practice things are done differently. Teachers at private schools tend to use teaching approaches that focus on the student and their abilities, while those at public schools usually remain with traditional ways and textbooks. They indicate that public schools should change their policies to help prepare teachers for using competence-based teaching methods. Working on these gaps can allow students to read, understand and speak better.

## **Implications of the Study**

The study's conclusions offer valuable insights for English as a Second Language (ESL) education in Pakistan.

- Both public and private school teachers having similar views on reading instruction means that the beliefs of teachers about literacy are quite similar.
- However, the divergence in actual classroom practices highlights a critical gap between belief and implementation particularly in public schools.
- This underscores the need for more practical, hands-on professional development that moves beyond theoretical orientations and equips teachers with actionable strategies for competence-based instruction.
- Teacher education programs must prioritize bridging this gap by integrating classroom simulations, reflective practice, and continuous in-service training.
- The significantly higher use of competence-based strategies in private schools signals that school environment, access to resources, and administrative support play a major role in shaping effective instructional practices.



- Education policymakers should consider improving institutional support structures particularly in public sector to ensure that even well-intentioned teachers can implement student-centered, skill-building reading instruction.
- Curriculum designers can benefit from these findings by revisiting the prescribed reading frameworks and making space for flexible, learner-focused methodologies that align with competence-based approaches.

### Limitations of the Study

While the study offers valuable insights, it is not without limitations.

- The research was confined to secondary schools in Karachi, which may not fully represent the diversity of educational contexts across Pakistan. Variations in regional policies, teacher training opportunities, and school infrastructure might influence beliefs and practices differently in other provinces or rural settings.
- The sample size for classroom observation was relatively small (20 teachers per sector), which, although manageable for qualitative analysis, may limit the generalizability of the findings for larger teacher populations.
- Moreover, classroom practices were assessed based on a limited number of observations (two sessions per teacher), which may not capture the full complexity or variation of instructional behavior over time.
- Another limitation is the reliance on self-reported beliefs through questionnaires, which may be subject to social desirability bias. Teachers might report what they believe is expected of them, rather than what they truly believe or practice.

### References

- Bakken, A. S., & Lund, R. E. (2018). Why should learners of English read? Norwegian English teachers' notions of EFL reading. *Teaching and Teacher Education*, 70, 78–87. <https://doi.org/10.1016/j.tate.2017.11.005>
- Bhatti, T. M. (2013). Teaching reading through computer-assisted language learning. *TESL-EJ*, 17(2), n2. <http://www.tesl-ej.org/wordpress/issues/volume17/ej66/ej66a2/>
- Borg, S. (2011). The impact of in-service teacher education on language teachers' beliefs. *System*, 39(3), 370–380. <https://doi.org/10.1016/j.system.2011.07.009>
- Channa, M. A., Nordin, Z. S., Simming, I. A., & Chandio, A. A. (2016). A qualitative study of reading comprehension: An insight from Pakistani context bridging the needs of engineering students. *International Journal of English Linguistics*, 6(2), 85–94. <https://doi.org/10.5539/ijel.v6n2p85>
- Fareed, M., Ashraf, A., & Bilal, M. (2016). ESL learners' writing skills: Problems, factors and suggestions. *Journal of Education and Social Sciences*, 4(2), 81–92.
- Fareed, M., Jawed, S., & Awan, S. (2018). Teaching English language at SSC level in private non-elite schools in Pakistan: Practices and problems. *Journal of Education and Educational Development*, 5(1), 80–95. <https://doi.org/10.22555/joeed.v5i1.1542>



Hasan, Z., Khurram, B. A., & Iqbal, A. (2023). An impact of explicit teaching of reading strategies on the reading motivation of Pakistani ESL learners. *SJESR*, 6(2), 126–137.

Imran, A., Batool, F., Altaf, F., & Lodhi, M. A. (2024). Effectiveness of English textbooks of Oxford University Press according to teachers' and students' perspectives. *Bulletin of Advanced English Studies*, 9(2), 30–50.

Kamhi-Stein, L. D., & Mahboob, A. (2005, March). The relationship between teachers' English proficiency and instructional practices in EFL settings and settings where English is an institutionalized language. In L. D. Kamhi-Stein (Organizer), *Language proficiency and NNES professionals: Findings from TIRF-funded research initiatives*. Spotlight colloquium conducted at the annual meeting of the Teachers of English to Speakers of Other Languages, San Antonio, TX.

Karimi, M. N., & Dehghani, A. (2016). EFL teachers' beliefs/practices correspondence in reading instruction: Does language teacher education make a difference? *International Journal of Pedagogies and Learning*, 11(1), 35–48. <https://doi.org/10.1080/22040552.2016.11876504>

Karimi, M. N., Abdullahi, K., & Khales Haghighi, J. (2016). English as a foreign language teachers' self-efficacy as a determinant of correspondence between their professed orientations toward reading and their reading instructional practices. *Innovation in Language Learning and Teaching*, 10(3), 155–170. <https://doi.org/10.1080/17501229.2015.1047123>

Kaymakamoglu, S. E. (2018). Teachers' beliefs, perceived practice and actual classroom practice in relation to traditional (teacher-centered) and constructivist (learner-centered) teaching (Note 1). *Journal of Education and Learning*, 7(1), 29–37. <https://doi.org/10.5539/jel.v7n1p29>

Khan, N., & Javed, F. (2024). Exploring teachers' perceptions of student engagement in Pakistani ESL classrooms. *Pakistan Languages and Humanities Review*, 8(3), 56–69. [https://doi.org/10.47205/plhr.2024\(8-III\)07](https://doi.org/10.47205/plhr.2024(8-III)07)

Khurram, B. A. (2023). The impact of metacognitive instruction on ESL university level students' awareness and use of the reading strategies. *SAGE Open*, 13(2). <https://doi.org/10.1177/21582440231179695>

Lau, K. L. (2007). Chinese language teachers' orientation to reading instruction and their instructional practices. *Journal of Research in Reading*, 30(4), 414–428. <https://doi.org/10.1111/j.1467-9817.2007.00350.x>

Muhammad, S. (2011). *L2 reading instruction and reading beliefs of English teachers in public sector universities in Pakistan* (Unpublished master's thesis). Northern Arizona University, Flagstaff, USA.

Muhammad, S. (2013). Second language reading instruction in Pakistan. *Procedia – Social and Behavioral Sciences*, 70, 1403–1412. <https://doi.org/10.1016/j.sbspro.2013.01.207>

Muhammad, Z., Ali, A. C., & Noor, H. (2025). Evaluating the influence of Meta-AI on enhancing English reading comprehension proficiency: An experimental study within a social media application framework. *Social Science Review Archives*, 3(1), 2223–2233. <https://doi.org/10.70670/sra.v3i1.533>

Naper, M. A., Younus, M., & Mangrio, A. M. (2024). Teaching the course of business communication to large classes in Pakistani universities: Challenges and suggested strategies. *International Journal of Innovation in Teaching and Learning*, 10(2), 132–154.

Noor, N. M. (2011). Reading habits and preferences of EFL post graduates: A case study. *Indonesian Journal of Applied Linguistics*, 1(1), 1–9. <https://doi.org/10.17509/ijal.v1i1.78>

Prosser, M., Trigwell, K., & Taylor, P. (1994). A phenomenographic study of academics' conceptions of science learning and teaching. *Learning and Instruction*, 4(3), 217–231. [https://doi.org/10.1016/0959-4752\(94\)90024-8](https://doi.org/10.1016/0959-4752(94)90024-8)