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EXAMINING INTERRELATED DRIVING FORCES FOR SUSTAINABLE SCHOOL IMPROVEMENT

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Abstract

This research is part of a comprehensive project whose goal is to analyze and activate the interconnected elements within the education system that foster student empowerment in the Sultanate of Oman. The project proposed that sustained enhancements in the education system hinge on a collection of interlinked subsystems or factors that collectively boost overall school performance and student learning (Osman, 2023). The primary aim of this investigation was to scrutinize the interrelated elements capable of expanding the educational environment and contributing to long-lasting improvements in schools. The study adopted a descriptive-analytical approach, combining both qualitative and quantitative data analysis techniques. The study's sample comprised 110 educators and administrators from the participating experimental schools. The results indicate that the 13 factors examined in the proposed model make significant contributions to viable school improvement. Nevertheless, the importance of these factors varies from one to another. Based on these findings, it can be argued that activating all interrelated elements within the education system is imperative for achieving enduring

improvements in student learning over time. Therefore, it is crucial to systemically enhance the performance of all interconnected factors within the education system.

Keywords

Systemic, Performance, Leadership, Sustainability, Improvement

1. Introduction

Education systems worldwide are under significant pressure to improve their performance and outcomes, and as a result, there is a considerable focus on models of continuous improvement.

Nevertheless, the ongoing hurdle confronting these systems does not stem from a deficiency of endeavors aimed at enhancing schools but rather from their capacity to maintain and uphold performance enhancements. According to Cheng (2010), efforts to reform education vacillate between top-down and bottom-up strategies, and school improvement initiatives frequently result in sporadic, relatively brief, or irregular isolated modifications. Educational reforms encompass a wide spectrum, encompassing minor tweaks to existing school procedures or limited to particular subject domains or grade levels, all the way to substantial transformations spanning the entire educational system. However, most improvement initiatives share a common challenge, namely that the problems they seek to address are complex and often rooted in broader societal issues. According to Fullan (2011), any reform initiative aimed at sustaining itself must be integrated directly into the school, altering teaching and learning practices and the school's culture to facilitate continuous self-improvement of the overall system.

The realm of school improvement is intricate and diverse, encompassing an array of methods and tactics to elevate the caliber of education within educational institutions. A substantial body of literature delves into this subject, examining diverse facets of school improvement and furnishing valuable perspectives on successful methodologies. Past research underscores the essential components essential for achieving substantial school improvement. These components entail adopting a systematic approach that furnishes a structured framework for the continual refinement and assessment of ideas, the identification of underlying issues, and the formulation of potential strategies to surmount hindrances that obstruct ongoing advancement.

Additionally, mobilizing and engaging all stakeholders can serve as a springboard for the intended sustainable change (Al Barwani and Osman, 2011; Creemers, Kyriakides, and Antoniou, 2012; Henk, 2010; Jonathan, D'Auria, Spillane, and James, 2019; Osman and Al Mekhlafi, 2018). Sustainable school improvement, in general, refers to continuous effort to adapt educational goals to accommodate changes in learning environments with an eventual aim of achieving school objectives more efficiently (Creemers, Kyriakides, and Antoniou, 2012; Thoonen, Slegers, and Peetsma, 2012).

The current focus of school improvement has shifted towards achieving quality education by promoting better school organization and fostering a commitment to ongoing collaborative learning, self-reflection, adaptation, and growth. Makoelle (2016) defines school improvement as a cyclical process that aims to enhance both the functionality and the achievement outcomes of learners. Therefore, school improvement initiatives must prioritize the general aspects of schooling to improve both the instruction and learning environments. In line with this, the Sultanate of Oman has placed considerable emphasis on systemic reforms in its educational system, and numerous research-based educational reform initiatives and strategies have been implemented.

Nonetheless, a significant portion of these endeavors has failed to bring about enduring reforms. This can be attributed to their narrow concentration on individual subsystems, as opposed to the integration of all motivating factors into a unified system (Al-Barwani and Osman, 2011).

As part of the research project with the HM Grant#: SR/EDU/TECH/14/01, the research team conducted a trial of the theoretical model known as the Innovation Sustainability Wheel (ISW), which was originally proposed by Al-Barwani and Osman (2011). The model was initially developed to address the crucial requirement for sustainable innovation within educational institutions. The ISW, depicted in Figure 1, was created to assess the preparedness and alignment of educational innovations while identifying any missing connections that could affect the potential sustainability of these innovations. The underlying hypothesis of the ISW posits that any enduring enhancement in the educational system hinges on a collection of interconnected motivating factors that jointly propel the general performance of the school.

The ISW draws its foundations from a combination of theoretical frameworks, including change, systems, and complexity theories (Davis, 2008; Mason, 2009; Rogers, 2003).

For example, the complexity theory helps to unravel the multifaceted factors that interact in the educational domain, while the system theory highlights the relationship between the parts and the whole (King, 2009; Thoonen et al., 2012). Similarly, the ISW takes into account the complex environments, organizational systems, and key players such as policymakers, community leaders, teachers, students, and parents. Consequently, the ISW places its emphasis on how the cultural environment of the school influences its structure and organizational behavior. This forms a robust basis for educational institutions to aim for excellence as they introduce educational modifications and novel concepts. Figure 1 illustrates the principal influences that support the longevity of educational innovations within school settings.



Figure 1: Innovation Sustainability Wheel (ISW)
(Source: Al Barwani, T. A., and Osman, M. E. 2011)

The primary motivating factors within the ISW are delineated below within the framework of the Omani educational system.

- *Vision*: The vision pertains to a concise declaration that harmonizes the proposed initiative with an overarching goal of the system. It should elucidate the way that innovation can aid the target audience in effectively and efficiently progressing toward that vision. The vision for school improvement is a dynamic and aspirational concept that evolves as our understanding of effective educational practices and student needs continues to evolve. It serves as a guidepost for schools, policymakers, and educators to work towards creating a more inclusive, equitable, and impactful educational system.
- *Leadership*: Effective leadership is crucial for sustainable school improvement. This includes both formal leadership roles, such as principals and administrators, as well as informal leadership roles, such as teacher leaders and parent volunteers. Leaders must be able to set a clear vision for improvement, establish a collaborative culture, and provide ongoing support and resources to teachers and staff. In addition, leaders must be able to build strong relationships with stakeholders, including parents, community members, and local businesses, to ensure that everyone is invested in the success of the school.
- *Communication Networks*: This pertains to social networks utilizing both that wireless and wired networks for vibrant transmission and dissemination of information.
- *Accountability*: It relates to the overarching responsibility within the system to foster an assimilated culture of self-assessment and a continuous cycle of evaluation and feedback directly associated with quantifiable results.
- *Resource Mobilization*: This refers to ensuring sustained support and efficient redistribution of accessible resources, thereby preventing new innovations from depleting resources required by other initiatives within the educational system or adversely affecting other schools through the wasteful use of valuable resources. It is imperative, therefore, to emphasize a need for fair allocation of funding, staffing, and educational materials in order to address educational disparities and provide all students with equal opportunities to succeed. It is apparent that equity-focused policies and practices help close achievement gaps and promote educational excellence for all students

- *Participation*: This entails the deliberate and engaged participation of all stakeholders, encompassing policymakers, parents, educators, and students. It emphasizes their collaborative efforts, acknowledging the mutually supportive roles they play in the lives of students. Engaging parents and local communities in the educational process is essential for school improvement. Studies suggest that robust collaborations involving schools, parents, and the local community can elevate student motivation, bolster student learning within and beyond the classroom, and cultivate a favorable school atmosphere. Effective family engagement practices include regular communication, involvement in school activities, and collaboration in decision-making processes.
- *Professional Development*: This term denotes initial training for all individuals involved, coupled with readily available chances to acquire new skills. It also involves the process of shedding previously held beliefs about students or instructional methods that may have been prevalent throughout their professional journeys. Within this framework, the school is considered the primary site for on-the-job training through peer coaching, and professional learning communities, which, in turn, can foster the sharing of best practices and lead to improved teacher performance and student outcomes.
- *Rewards*: This encompasses a range of incentives, spanning from personal and professional gratification derived from witnessing the favorable influence of their efforts on students' success to a monetary reward structure that might be linked to career advancements. Acknowledging and appreciating the hard work and dedication of educators can boost morale, job satisfaction, and overall teacher effectiveness. In turn, motivated and engaged teachers can positively impact student learning outcomes.
- *Institutionalization*: This driving force aims to stabilize educational innovations and ensure sustainable improvement through adapted organizational structure, bylaws, and procedures
- *Coordination*: This encompasses overseeing the endeavors of all individuals engaged in devising and executing a specific innovation with mutual objectives and a cohesive emphasis that aligns seamlessly with other concurrent initiatives.
- *Ownership*: This entails fostering a feeling of belonging and possession of the innovation by engaging all stakeholders, especially those responsible for its implementation, and dissemination.

- *Empowerment*: This term alludes to furnishing those who adopt the innovation with the necessary tools, suitable work atmosphere, and opportunities to make decisions and assume a sense of responsibility.
- *Research & Development*: Within the ISW framework, research entails data-driven rationales for the innovation, encompassing the complete cycle of Research-Development-Research (RDR), which encompasses justification, outcomes, and iterative improvement. This allows school leaders and teachers to reflect on learned lessons to continue improving the school's performance.

As outlined in the conceptual model, the achievement of sustainable school improvement results from an ongoing momentum instigated by numerous motivating factors. Previous research has shown that the collective impact of all the driving forces in the ISW has positively influenced school performance (Al-Mekhlafi & Osman, 2019; Osman & Al-Mekhlafi, 2018). Although the ISW offers an efficient systemic method for enhancing schools by activating and assessing all motivating factors through documentation and appropriate interventions, the specific impact of individual motivating factors on school improvement remains uncertain. Hence, this study intends to examine how interconnected motivating factors influence the enhancement of overall school performance and the optimization of students' learning within the Omani educational system.

2. Method

This study is a component of a larger four-year research project with the primary objective of systematically evaluating the performance of participating schools and their interconnected subsystems. The research methodology employed a descriptive-analytical approach, utilizing a blend of quantitative and qualitative data analysis methods. The theoretical framework employed in this study is the Innovation Sustainability Wheel (ISW), which is employed systematically to enhance school effectiveness. All administrators and educators within the experimental schools participated in a sequence of workshops aimed at implementing the 13 elements of the ISW. They were also provided with an e-platform featuring multimedia and open resources in various subject areas. Additionally, students were empowered through enrichment programs and self-learning activities. However, it is crucial to note that this study

exclusively presents the perspectives of teachers and administrators concerning the impact of each of the 13 interconnected motivating factors within the ISW on school improvement.

2.1. Population and Sample

The population comprised 222 teachers and administrators in four schools. The sample included 114 subjects who responded to an online questionnaire. The questionnaire consisted of 60 items that were categorized among 13 assumed factors. Additionally, the questionnaire included an open-ended question to rank all these motivating factors based on their level of importance and contribution to sustainable school improvement.

2.2. Results and Discussion

Drawing from the principal discoveries of a four-year research undertaking, this study discloses that the schools in the experimental group, which embraced the ISW model, surpassed their peers in the control group in terms of performance. The findings show that the combined influence of all the motivating factors within the ISW played a role in enhancing overall school performance. Nevertheless, the extent of significance and contribution varied depending on the perspectives of the participants. Participatory school leadership, shared school vision, participation, and professional development were among the most important factors contributing to sustainable school improvement, while accountability, ownership, and coordination were ranked at the bottom in terms of their importance and contribution to school improvement. Figure 2 shows that all factors were ranked high (above 3.5) in terms of their importance and level of contribution to sustainable school improvement. Table 1 displays the rank order of all the driving forces in the model.

Table 1: The Rank Order ISW Factors as Determined by their Mean Scores

Rank	Factors	Mean	SD
1	Vision	4.25	.96
2	Leadership	4.20	.94
3	Participation	4.18	.98
4	Professional Development	4.12	1.04
5	Research	4.11	1.05
6	Reward System	4.10	1.01
7	Institutionalization	4.10	1.01

8	Empowerment	4.09	1.05
9	Communication Networks	4.06	1.06
10	Resource Mobilization	4.02	1.03
11	Accountability	4.00	1.11
12	Ownership	3.98	1.08
13	Coordination	3.94	1.15

(Source: Data from the Survey used in this Study)

The rank order of the factors (the ISW driving forces) was based on Al Farra's (2009) rating scale in terms of their degree of importance and contribution to sustainable school improvement as shown in Table 2.

Table 2: The Rating Scale for the Degree of Importance

Scale value	Degree of Importance
1- 1.7	Very low
1.8 - 2.5	Low
2.6 - 3.3	Moderate
3.4 - 4.1	High
4.2 – 5	Very high

(Source: Al Farra (2009, P.26)

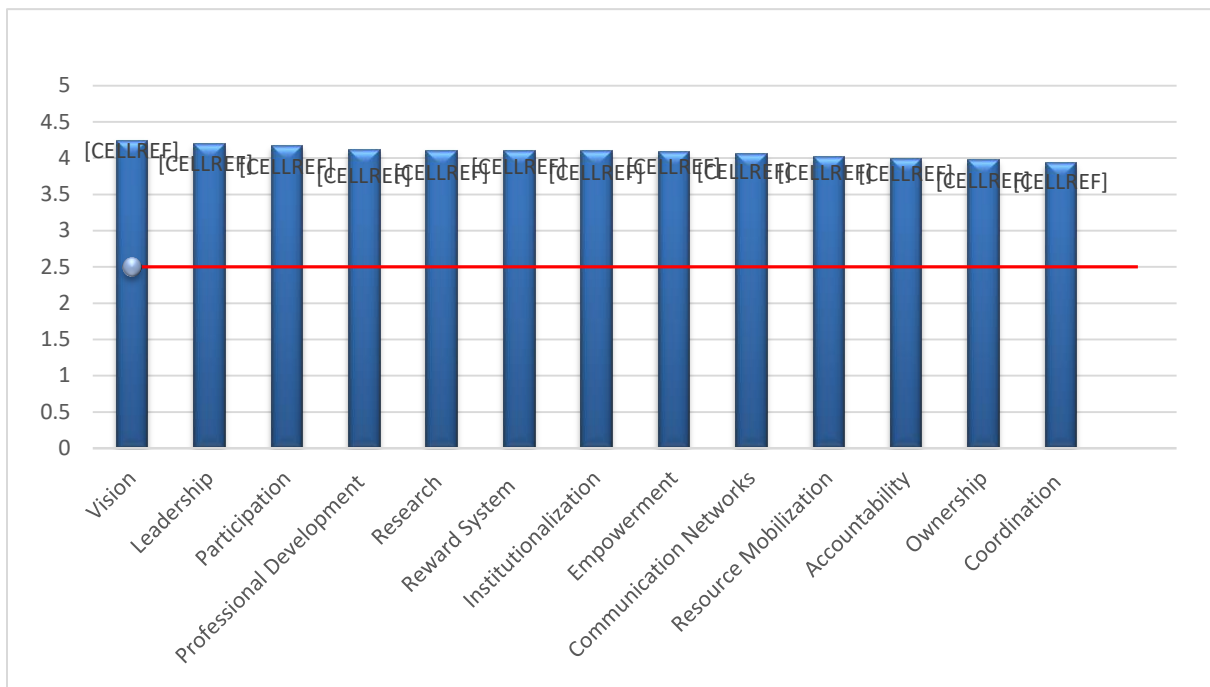


Figure 2: The Rank Order of the ISW Driving Forces

(Source: Author's Illustration Based on the Mean Scores of the Sample Ratings)

Overall, the conclusions drawn from this study appear to be in congruence with previous research on school effectiveness (Al Mekhlafi & Osman, 2019; Brunings, 2014; Creemers & Kyriakides, 2012; Cowell, N. 2013; Osman, M. & Abdo Al Mekhlafi, 2018), indicating that context-specific systemic approaches to educational reform have the potential to instigate favorable alterations in school operational procedures and result in substantial enhancements in school efficiency. Efficient leadership, which considers teacher involvement and active participation, has been identified as pivotal in improving the school atmosphere and, as a result, elevating student academic performance (Amin, Shah, & Tatlah, 2013; Jeyasushma Veeriah, et al., 2017).

Research consistently shows that effective leadership is a critical factor in school improvement. Grissom, Egalite, and Lindsay (2021) found that successful school turnaround efforts were led by leaders who could create a shared vision among the school community and stakeholders. Furthermore, the study's results suggest that leadership uniquely implements all other driving forces. Engaging practitioners in the diagnosis and strategic planning process, for example, can lead to increased ownership and commitment to implementing the desired reforms.

Another critical factor that appeared to contribute immensely to school improvement is on-site teachers' professional development. Effective professional development, as described by Kedzior and Fifield (2004), should be integrated, ongoing, consistent with teachers' goals, and based on rigorous needs assessment and research evidence. In line with earlier research, the outcomes of this study indicate that school enhancement rooted in teachers' professional interactions and networks is likely to have a more enduring impact compared to top-down and externally mandated innovations, which frequently result in teacher dissatisfaction (Lin, Lee, & Riordan, 2018).

Osman (2016) argues that although teachers' professional development has often been correlated with improved student learning, its effectiveness and sustainability depend largely on the authentic conditions under which it is delivered. In addition, research on professional development shows that when teachers are provided with opportunities to learn and improve their practice, student outcomes improve as well (Kennedy, 2019). Congruently, the findings of this study illustrate that job-embedded professional development emerges as a viable driving force for enhancing students' and teachers' performance alike. Therefore, it is crucial to integrate teacher professional development into the school improvement process, rather than a detached intervention imposed on the school system. However, it is needless to say that improved teacher performance should be tied to a fair and equitable reward system that is aligned with the overall educational goals and values.

Moreover, the participation of stakeholders, in general, and parental involvement, in particular, was also found to be one of the most significant driving forces contributing to overall school improvement. Engaging the broader community in school improvement efforts can have a significant impact on student academic performance, in particular. Duric and Bunijevac (2017) argue that when parents are involved in their child's education, students have higher levels of academic achievement, improved behavior, and higher graduation rates. Engaging the community in school improvement efforts can help to ensure that everyone is working towards the same goals and can help to sustain improvements over time. By building strong relationships with the community, schools can create a sense of shared responsibility for the success of the school and ensure that everyone is working towards the same goals. As per Cook (2014), involving a wider range of stakeholders, such as policymakers, school principals, teachers, and

parent councils, is essential for generating substantial and long-lasting transformation through the improvement process.

3. Conclusion

Sustainable school improvement is a complex process involving various factors and stakeholders. Accordingly, this requires a multifaceted approach that addresses the interrelated driving forces of leadership, teaching and learning, and community engagement. By focusing on these areas, schools can create a culture of continuous improvement that leads to better outcomes for students, teachers, and the broader community. Derived from the discoveries of this research, one can make the case that the caliber of school effectiveness hinges upon a comprehensive improvement strategy, wherein all conceivable components of school effectiveness are deliberately and methodically set into motion. The motivating factors within a systemic sustainability approach can amplify school effectiveness and foster enhanced overall school performance, ultimately translating into advancements in students' learning.

The Innovation Sustainability Wheel (ISW) possesses the attributes to uplift both school effectiveness and the process of school improvement. Each motivating factor within the ISW holds the potential to shape a school environment that fosters a dynamic synergy between overall school performance and the academic accomplishments of students. By establishing an interface between academic performance and academic achievement, ISW provides a comprehensive framework that can enhance the performance of schools and students. The application of ISW in schools can effect tremendous changes in school effectiveness, which in turn, improves students' academic performance in various subject areas. This study emphasizes the importance of visionary leadership that sets high expectations, promotes a positive school culture, and facilitates the development and implementation of strategic plans aligned with school goals. Additionally, instructional leadership, where principals actively support and guide teachers in improving instructional practices, has been shown to positively impact student achievement.

While all 13 driving forces identified in the ISW appear to be indispensable, leadership emerges as the most dynamic driving force for sustainable improvement in school performance. It is imperative, therefore, for school leadership to develop and communicate a shared vision that builds consensus about school improvement goals and promotes a learning organization that values diversity and shared leadership. The vision for school improvement

highlights the importance of data-informed decision-making. It envisions a system where schools systematically collect and analyze data to monitor student progress, identify areas for improvement, and inform instructional interventions. It is needless to point out that data-driven decision-making helps schools identify effective practices, allocate resources strategically, and make informed decisions to enhance student outcomes. Incremental improvements in school performance can be significant and should be celebrated, but these piecemeal improvements do not constitute sustainable change. According to systems theory, it can be argued that the quality of a subsystem lies in its relationship with the whole system. The findings of this study demonstrate that the interrelated driving forces for sustainable school improvement are all important and interconnected. Thus, any sustained systemic improvement would require high levels of integration and coordination among all driving forces.

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REFERENCES

- Al- Barwani, T. A., & Osman, M.E. (2011). Promoting Students Learning through Sustainable Innovations: Where is the missing link? In MacBeath, J. and Townsend, T. (Eds. Pp. 845-865), *International Handbook on Leadership for Learning*: Springer Publishers. https://doi.org/10.1007/978-94-007-1350-5_47
- Al Fara, W. A. (2009). *Tahlil Bayanat Alestibyan Be Barnamaj SPSS* -in Arabic [Analyze questionnaire data with SPSS]. Noor Book., KSA.
- Al Mekhlafi, Abdo, and Osman, Mohamed. (2019). The Effect of a Holistic School Improvement Model in Enhancing School Effectiveness in Oman. *Malaysian Journal of Learning and Instruction*, 16, (.2), 187-200. <https://doi.org/10.32890/mjli2019.16.2.7>
- Amin, M., Shah, S., & Tatlah, I. A. (2013). Impact of principals, directors' leadership styles on job satisfaction of the faculty members: Perceptions of the faculty members in a public university of Punjab, Pakistan. *Journal of Research*, 7(2), 97-112.

- <https://www.semanticscholar.org/paper/Impact-of-Principals-Directors%27-Leadership-Styles-a-Amin-Shah/f235d5d9af7fe40f1ce8f005918c965c070886fb>
- Brunings, J. (2014). *What big business can learn from a small school?* Retrieved from <https://onstrategyhq.com/resources/what-big-business-can-learn-from-a-small-school/>
- Cheng, Y. (2010). A Topology of Three-Wave Models of Strategic Leadership in Education. *Int. Stud. Educ. Adm.* 38 (1), 35–54. <https://www.semanticscholar.org/paper/A-topology-of-three-wave-models-of-strategic-in-Cheng/e725180e8bb6a4fe057955cf8d899add87533f68>
- Cook, J. (2014). Sustainable School Leadership: The Teachers' Perspective. *International Journal of Educational Leadership Preparation*, 9 (1), 1-17. <https://files.eric.ed.gov/fulltext/EJ1024112.pdf>
- Creemers, B. P. M., Kyriakides, L., & Antoniou, P. (2012). A dynamic approach to school improvement: main features and impact. *School Leadership & Management*, 33(2), 114–132. <https://doi.org/10.1080/13632434.2013.773883>
- Davis, B. (2008). Complexity and Education: Vital simultaneities. *Educational Philosophy and Theory*. 40(1), 50-65. <https://doi.org/10.1002/9781444307351.ch4>
- Duric, M. and Bunijevac, M. (2017). Parental involvement as an important factor for successful education. *Center for Educational Policies Study Journal*, 7(3), 137-153. <https://doi.org/10.26529/cepsj.291>
- Fullan, M. (2011). *Change leader: Learning to do what matters most*. John Wiley & Sons. [https://scholar.google.co.in/scholar?q=Fullan,+M.+\(2011\).+Change+leader:+Learning+to+do+what+matters+most.+San+Francisco,+CA:+Jossey-Bass.&hl=en&as_sdt=0&as_vis=1&oi=scholart](https://scholar.google.co.in/scholar?q=Fullan,+M.+(2011).+Change+leader:+Learning+to+do+what+matters+most.+San+Francisco,+CA:+Jossey-Bass.&hl=en&as_sdt=0&as_vis=1&oi=scholart)
- Henk, M., & Writer, W. T. W. L. (2010). *Change theories in education*. We Teach We Learn, 28. Retrieved from <https://www.weteachwelearn.org/2010/01/change-theories-in-education/>
- Jonathan A.; D'Auria, John; and Spillane, James P.. (2019). *Meaningful & Sustainable School Improvement with Distributed Leadership*. CPRE Research Reports. Retrieved from <https://repository.upenn.edu/handle/20.500.14332/8359>
- Kennedy, Mary. (2019). How We Learn About Teacher Learning. *Review of Research in Education*. 43. 138-162. <https://doi.org/10.3102/0091732X19838970>

- King, K. (2009). Education, Skills, Sustainability, and Growth: complex relations. *International Journal of Educational Development*, 29, 175-181.
<https://doi.org/10.1016/j.ijedudev.2008.09.012>
- Kedzior, M., & Fifield, S. (2004). Teacher professional development. *Education Policy Brief*, University of Delaware, 15(21), 76–97. <https://udspace.udel.edu/items/22a7bcfa-7c1c-4052-a9f5-0dbb59ea2720>
- Lee, M. & Louis, K.S. (2019). Mapping a strong school culture and linking it to sustainable school improvement. *Teaching and Teacher Education*, 81, 84-96.
<https://doi.org/10.1016/j.tate.2019.02.001>
- Lin, W., Lee, M., & Riordan, G. (2018). The Role of Teacher Leadership in Professional Learning Community (PLC) in International Baccalaureate (IB) Schools: A Social Network Approach. *Peabody Journal of Education*, 93(5), 534-550. <https://doi.org/10.1080/0161956X.2018.1515833>
- Makoelle, TM. (2016). *Inclusive Teaching in South Africa*. Edited by MP van der Merwe, 1st ed., African Sun Media, JSTOR. <https://doi.org/10.2307/j.ctv1nzfxs4>
- Mason, M. (2009). *Critical thinking and learning*. Hoboken, NJ: Wiley Blackwell.
<https://doi.org/10.1002/9781444306774.ch1>
- Osman, M. (2023). Sustainable school improvement: the interrelated driving forces. 17th International Technology, Education and Development Conference. Valencia, Spain.
<https://doi.org/10.21125/inted.2023.0295>
- Osman, M. E. (2016). Embedded teacher professional development in Oman: Opportunities and challenges. In *Redefining Teacher Education for the Post-2015 Era: Global Challenges and Best Practices* (pp. 201-212). Nova Science Publishers, Inc.
<https://squ.elsevierpure.com/en/publications/embedded-teacher-professional-development-in-oman-opportunities-a>
- Osman, M. and AL Mikhlaifi, A. (2018). Impact of a systemic approach to school effectiveness on students' academic performance. *International Journal of Education*. 10, (1), 125-139. <https://doi.org/10.5296/ije.v10i1.12931>
- Rogers, E. M., Singhal, A., & Quinlan, M. M. (2014). Diffusion of innovations. In *An integrated approach to communication theory and research* (pp. 432-448). Routledge.

<http://www.lamolina.edu.pe/postgrado/pmdas/cursos/innovacion/lecturas/Obligatoria/17%20-%20Rogers%201995%20cap%206.pdf>

Thoonen, E.E.J., Slegers, P.J.C., Oort, F.J., & Peetsma, T.T.D. (2012). Building schoolwide capacity for improvement: the role of leadership, school organizational conditions, and teacher factors. *School Effectiveness and School Improvement*, 23(4), 441-460.
<https://doi.org/10.1080/09243453.2012.678867>