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Industry Perspectives of Industry School Partnerships: What can Agriculture Learn?

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Abstract

This paper aims to identify and synthesise research related to industry perspectives of industry school partnerships (ISPs) with primary and secondary students globally. A systematic review of ISP studies published between 2001 and 2021 that included industry perspectives was undertaken in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) protocol.

This focused systematically ordered review of industry perspectives of ISPs elicited four key findings:

1. Limited research specifically focusing on industry participants’ perceptions of career and knowledge sharing ISPs exist.
2. The most common reasons for participation included promoting careers and/or their industry, and enhancing community goodwill.
3. The most common barriers or challenges in participating included time, budget and process constraints, and understanding the partnership’s impact.

4. Communication, trust, relationships, and setting clear goals are often important features highlighted for successful partnerships.

The recommendations from this review will be used to design, deliver and evaluate ISPs which aim to benefit agricultural industry participants. Future research will apply the findings from this review to a rural case site in Victoria, Australia, focused on agricultural ISPs aimed at increasing students' aspirations for a career in the sector. This is vital as agriculture is an important industry in this region, yet many students are unaware of the range of career opportunities available to them.

Keywords: *industry school partnership, school industry partnership, business perspectives, industry perspectives, career education, agricultural education*

Introduction

Historically, schools have sought to work with industry for various reasons including to complement curriculums, support career education, and seek monetary donations (Torii, 2018). These types of partnerships, often labelled as industry school partnerships (ISPs), have been one means to make schooling more relevant whilst providing opportunities to enrich student learning and improve career aspirations (Hughes et al., 2016; Mann et al., 2018; Shergold et al., 2020; Torii, 2018). These opportunities are especially important for rural and regional students who are often more disadvantaged than their city counterparts, having lower levels of educational and career aspirations (Parliament of Victoria, 2018; Sullivan et al., 2018). Whilst there are many definitions of ISPs, generally they can be described as mutually beneficial relationships between representatives from businesses in any industry, and a school, or group of students (Torii, 2018; Pillay et al., 2014). Partnership activities are undertaken with industry representatives from any industry and vary in length, students' demographic, and type of support, such as mentoring, workplace tours, or offering health services. Often schools look to industry for guidance or answers relating to careers, however, with the world of work rapidly changing, industry does not necessarily know what the future will look like for these students (Cassells et al., 2018; OECD, 2018; Rothman, 2019).

Industry and schools must learn and change together as priorities shift in a changing future of work (Flynn et al., 2016; OECD, 2018). This interstitial space between the changing world of work and ISPs has not been researched from the perspective of industry. The industries themselves are under change, stress and pressure. In 2022 as this article is being written, at the time of a global pandemic, we are witnessing the disastrous effects of climate change, incredible bottlenecks in supply chains throughout the world, changing demographics and huge moves in technological innovation, all impacting the world of work (Parliament of Australia, n.d.). These factors are often highlighted further in rural communities with industries based in these locations visibly impacted by these challenges and often being under-resourced in ways that exacerbate uncertainty around the future of work and the sustainability of these regions (Climate Council of Australia, 2016; Garnett, 2018; Australian Government Department of Industry, Science, Energy and Resources, 2018). The literature is limited with respect to studies in which ISPs are explored from the industry perspective, and what they can potentially find in these partnerships during these times of change.

In Australia, many students have a lack of knowledge about agriculture, and are not aware of the vast range of career options available in the industry (Primary Industries Education Foundation Australia (PIEFA), 2020). ISPs have been identified as one means to help improve students' knowledge of agriculture and associated careers (Education Council, 2019; Shergold et al., 2020). To form partnerships, industry members willing to participate must be identified. However, industry perspectives must first be understood to develop partnerships that meet all stakeholders' needs. By reviewing literature involving all industries participating in ISPs across

the globe, we seek to find recommendations to apply to agricultural ISPs. This aligns with our particular research interest in raising and expanding the career aspirations of students in agricultural industries. Hence, for the purposes of this review, ISPs are defined as: a relationship between a school(s) and an industry partner(s) centred around knowledge-sharing and career awareness. Industry partners may own, or are employed at, any private business, or work in the public sector. They have knowledge and perspectives which they can share to teach students about the industry in which they work, and associated careers.

Three questions guided this systematic review of literature reporting on industry perspectives of ISPs with primary and secondary students globally over the last twenty years from January 2001 to December 2021. Firstly, what are industry personnel perspectives of industry school partnerships? Secondly, what recommendations were made that offer ways of improving industry school partnerships for industry participants. Thirdly, how can these findings inform agricultural industry school partnerships?

The method for literature selection is provided in the following section. The results relevant to the guiding questions presented above and a discussion of implications for ISPs will follow.

Method

The Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) reporting guidelines were used to transparently select literature for analysis (Page et al., 2021). This process began by identifying and then searching reputable databases EbscoHost, Education Resources Information Centre (ERIC), ProQuest and Scopus, followed by screening these records first by title, then abstract, to remove those not meeting the inclusion or exclusion criteria. Those studies remaining were read in full to identify studies suitable for comprehensive analysis. Relevant information from these articles were then summarised in the analytic matrix presented in Table 1.

Key words and phrases included in the searches were ‘career’ and ‘industry school partnership’ to capture ISP literature. The full search terms are included in Figure 1.

The inclusion criteria adopted for selection of sources were studies:

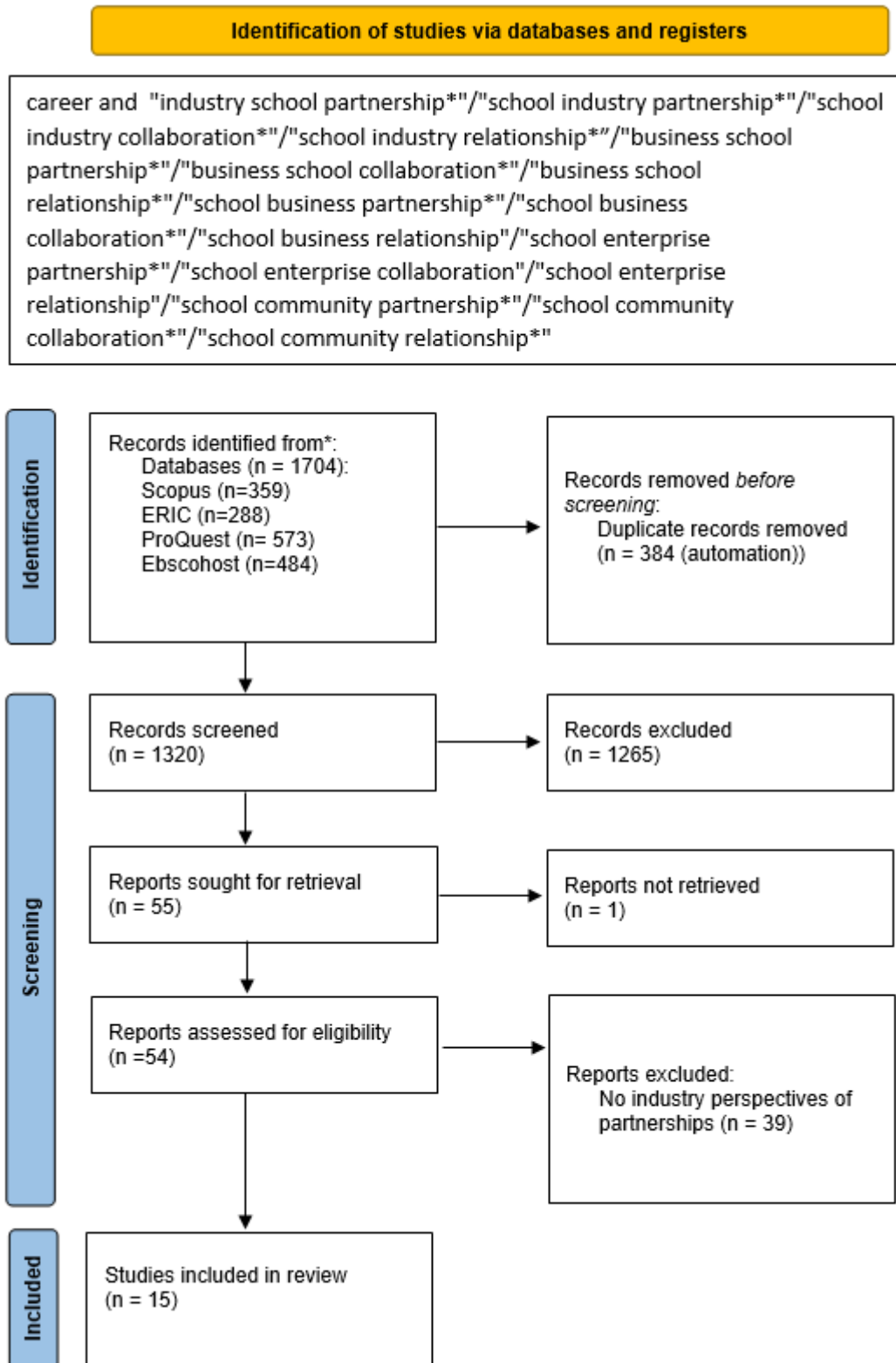
- On samples composed of industry participants partnering with primary and secondary school students, with or without inclusion of teachers and/or students in the study.
- Where knowledge sharing and career awareness is the focus of at least one activity in the partnership.
- Within the normal school setting.
- Outside of the school setting which occurred during class time.
- Peer reviewed research articles and conference proceedings published from 2001 to 2021.

The exclusion criteria adopted for the selection of sources were studies:

- Which included adult learners, university students or pre-school age students as the students participating in the partnerships.
- Focusing on ISPs where knowledge sharing and career awareness are not the primary focus.
- Where the ISP activities are:
 - Individual to each student for example: student work placements or one-on-one mentoring
 - Outside of school hours, or extracurricular
- Published in languages other than English.

Figure 1 visually represents the literature identification and screening process.

Figure 1: PRISMA Flow Diagram



(Adapted from Page et al., 2021)

The literature search produced 1,704 articles for consideration. Duplicates were removed using EndNote X9, whereafter 1,320 articles remained. The titles and abstracts of these remaining studies were assessed to determine whether they could be removed based on the exclusion criteria for this review. Following this, 55 full text studies required further investigation. A further 29 studies were removed after examining the methodology due to no appropriate data having been collected from industry participants. The remaining 26 studies were assessed using the Critical Appraisal Skills Programme (CASP) checklist for qualitative research (Critical Appraisal Skills Programme 2018) which was adapted to include qualitative, quantitative, and mixed methods approaches. A further ten articles were excluded. After reading in full, details from the final 15 articles were collated into an analytic matrix to allow for evaluation. The following items were included in the analytic matrix: 1) citation; 2) location; 4) aim/purpose; 5) methodology/research design; 6) method(s); 7) data analysis strategy; 8) sample size and participants; 9) relevant findings. Some items were not specified in each article. Where this occurs, it has been noted in the matrix. The analytic matrix provides a clear, systematic summary of the relevant results from each study. This has provided a basis for critical analysis for this review.

Results

The analytic matrix is presented in Table 1, providing a summary of results related to industry perceptions of ISPs from the 15 included articles.

Table 1: Analytic Matrix of Results

Citation	Location	Aim/Purpose	Methodology / Research Design	Data collection methods	Data analysis strategy	Sample size and participants	Findings (only related to industry perceptions)
Luaces et al., (2019)	USA– urban	Describes the formation of the University of Kansas Health Science Academy and outcomes of its first year of implementation.	Case study	Meeting notes and Semi-structured group interviews	Qualitative data-themes from group interviews, meeting notes, and student focus groups; and cross-case analysis and common theme development. Statistical analysis was used to draw inferences from survey data.	7 key Health system stakeholders (VP of Operations, CEO, Director of Patient- and Family-centered Services, Director of Nursing Education, Support positions' department heads, Director of Marketing and Communication Police and Public Safety).	Barriers – lack of continuous funding often mentioned. Two participants wanted to attract workforce, and one wanted formal agreements/process, targeted activities to see outcomes.
Plunkett & Dyson (2019)	Australia– regional	Data gathered aimed to gather qualitative and quantitative data around participants' change in attitude, perception, and understanding over the course of the project.	Case study incorporating a mixed methods framework	Survey and focus groups	N/A	13 organisations (university and government) involved across 6 schools. Unknown how many contributed to data sets.	Numerous barriers (time, budget, process constraints, difficult to coordinate), challenges (evidence of impact), benefits (reach students, staff reacquainted with own pathways) and aims (students understanding pathways, world of work) deduced from participants' quotes.
Bennett & Thompson (2011)	USA- metropolitan	To examine the superintendent's role in development and institutionalisation of school and business partnerships in a district without history of collaborative relationships; to assess capacity for sustainability.	Qualitative case study	Semi-structured interviews, observations, and document analysis	Neo-institutionalism theory utilised. Inductive analysis allowed themes to emerge based on lived experiences. Codes and themes used required consensus with two additional coders.	7 chamber of commerce individuals (Chamber CEO, Banking, Landscaping, Entertainment, Insurance).	Motivations to participate included students being deficient in thinking and job-seeking skills, wanted to do something about it. A participant identified promotion of business as a benefit, another saw community benefits, one liked the recognition. Partnership coordinator role was acknowledged as essential and effective.

Citation	Location	Aim/Purpose	Methodology / Research Design	Data collection methods	Data analysis strategy	Sample size and participants	Findings (only related to industry perceptions)
Malin et al., (2020)	USA	How cross-sector collaboration shaped development and implementation of district-wide high school career academies in a large urban school district.	Single case study	Semi-structured individual and focus-group interviews	Qualitative data analysed as per Bazeley and Jackson (2013).	8 business/industry partners Industry not specified.	One participant 'guessed' academies were effective. Challenges identified included: power imbalance with school, courses not up to industry standard, difficulty making changes, students learning outdated content.
Pillay et al., (2014)	Australia- Queensland	An empirical analysis of two dimensions: effectiveness and efficiency as applied to implementation of partnerships within the Gateway schools' initiatives.	Qualitative exploratory case study	Semi-structured interviews	Interviews coded into themes. Discrepancies in coding were resolved by discussion.	8 industry participants from the following industries: aviation, building and construction, manufacturing, minerals, and energy.	Barriers included time, inflexible nature of school. One happy to play a greater role with engaging schools/students, including spending time in industry. One reported unrealised outcomes, students of insufficient standard. No respondents thought the project affected school system policies after 10 years.
Carter et al., (2009)	USA- midwestern state	To examine the role that chambers of commerce and other local employer networks might play in expanding employment opportunities for youth with and without disabilities in their local communities.	Randomly assigned half of all invited organisations to receive a survey referencing youth, with the other half referencing youth with disabilities.	Survey	Descriptive statistics, independent-samples t tests, correlation analyses, open-ended section categorised by content	135 participants in total (122 chamber of commerce, 13 other networks). Business sectors include service industry/retail, insurance/banking, healthcare, government, manufacturing, communication/technology, utilities, education, home-based business, real estate, tourism.	Many already worked with schools and responses reflected a general willingness to partner with local high schools. Across every activity, average ratings were higher for the organisations whose surveys referenced youth versus youth with disabilities. Despite reporting an organisational mission that involved supporting youth and viewing activities overall as being moderately feasible, there was a low and variable involvement of chambers of commerce.

Citation	Location	Aim/Purpose	Methodology / Research Design	Data collection methods	Data analysis strategy	Sample size and participants	Findings (only related to industry perceptions)
Kakalia et al., (2019)	USA- North Hawaii	To strengthen the pipeline for students to pursue higher education and careers in health, promote physician retention in North Hawaii.	N/A	Faculty feedback by observation and discussion with uni students	N/A	N/A. All participants from the health industry.	Two participants hoped the program continues and grows, one felt their experience in program was extraordinary and one identified that they learnt from children. One thought that exposing students to the health field is great thing.
Butler & Poekert (2018)	USA- Palm Beach County	Provides information on formation of the STEM Education Council, its development, obstacles encountered, lessons learned to provide a survey of an academic-industry partnership.	N/A	N/A	N/A	N/A. No particular industry- range of business involved including local philanthropies, colleges and universities, businesses, and research institutes.	The STEM Education Council members felt they could contribute by providing funding, resources, field experiences, and opportunities to explore real-world situations.
Woodroffe et al., (2017)	Australia- regional	Explores aspects of developing and implementing career education activities/ partnerships in rural and regional Tasmania	Mixed methods using a convergent parallel design	Interviews	N/A	8 industry/community stakeholders. Participants industries not stated. From quotes, one can be identified as from agriculture industry.	Participants wanted to showcase their work environments and shared their stories and career pathways (four quotes – two from agriculture industry). One offered ongoing support, and another planned to keep the partnership going.
Hernandez-Gantes et al., (2017)	USA- metropolitan	To explore the nature of a partnership between a career academy featuring an IT curriculum and local business partners	Case study	Documents, observation, interviews. Triangulation of sources.	Interviews analysed using thematic analysis.	17 business and industry partners from IT industry.	Career specialist identified as critical element for success. Participants wanted to promote careers, feed own pipeline, invest in upcoming generation and were proud of being involved.

Citation	Location	Aim/Purpose	Methodology / Research Design	Data collection methods	Data analysis strategy	Sample size and participants	Findings (only related to industry perceptions)
Hoff (2002)	USA- metropolitan	To explore the business view of partnerships.	Exploratory survey	Survey	Descriptive statistics and cross tabulations. Open ended questions were charted for frequency.	327 businesses from the following industries: Service, finance/real estate, retail trade, technology, hospitality, manufacturing, utilities, mining, construction and wholesale trade.	37% identified success measures, but few involved in determining them. Most thought businesses should devote resources to individual schools and agreed that they needed to assist education. Formal school feedback rarely provided. Most partnerships were successful. Personnel change was a major reason for failure. Proximity to school, school need and dynamic leadership were important characteristics for selecting schools. Enhancing community goodwill was a reason for becoming involved.
Badgett (2016)	USA- a metropolitan and becoming urban area	To explore the definition, form, and scope of what effective school-business partnerships look like from the perspective of business leaders, owners, and managers in two diverse areas of Texas.	Qualitative research design	Interview	Interviews were coded with the constant comparative method.	18 business leaders. Industries not specified, but results indicate technology and electrical engineering, industrial equipment, metal fabrication, radio, service and hospitality industries.	Major themes: collaboration and common purpose (relationships, communication, trust, future of students). Minor themes (results and follow through (return on investment, integrity, responsibility).
Morris et al., (2021)	Australia	To show how a partnership between industry and the university supports improved STEM content knowledge and self-efficacy for early career teachers	Case study	Interviews and focus groups	Inductive coding. Triangulation between researchers.	4 participants from one major STEM-driven organisation.	They discussed partnerships as longitudinal relationships that would allow for diverse experiences to be offered over time and the needs to establish clear motives and goals.

Citation	Location	Aim/Purpose	Methodology / Research Design	Data collection methods	Data analysis strategy	Sample size and participants	Findings (only related to industry perceptions)
Howitt et al., (2009)	Australia	Case studies provided to demonstrate the range of relationships found between scientists and teachers.	Not clear. Evidence was gathered through a variety of methods.	Interviews, feedback sheets, online survey	N/A	Interviews with 13 teacher-scientist partnerships. Analysis of 96 feedback sheets from teachers and scientists. 194 scientist responses from online survey.	Scientists benefited from communication with teachers and peers, improved communication with students, increased job motivation and enthusiasm, partnership legitimisation and a better understanding of community's awareness and perceptions of their work (not clear if this came directly from industry).
Kirschenbaum & Reagan (2001)	USA- urban	To examine a school-university collaboration process.	N/A	Interviews	N/A	57 program directors (university staff). Participants were split into the following categories: Education, Medical, Cultural	Several participants desired objective methods of measuring outputs. Unsatisfactory collaborations were characterised by poor communication, transience of school staff, lack of shared investment in program. 67% of programs had strong commitment to collaboration and would continue if leader no longer involved, 16% would cease. One expressed frustration about: lack of time, funds, knowledge about effective collaboration.

Note: N/A = not available

Industry Perspectives of Industry School Partnerships

For this review, the authors sought to identify industry perspectives of ISPs. Where studies included data from participants other than industry, for example, teachers or students, only the industry component has been considered. The purposes, conduct and findings of the studies were coded across three themes:

1. Evaluating or describing an individual ISP or program
2. Exploring industry views of partnerships in general, not related to a specific program
3. Perspectives from industry who have participated in unrelated ISPs

Evaluating or Describing an ISP or Program. Ten studies evaluated or described a particular ISP or program (Bennett & Thompson, 2011; Butler & Poekert, 2018; Hernandez-Gantes et al., 2017; Howitt et al., 2009; Kakalia et al., 2019; Luaces et al., 2019; Malin et al., 2020; Pillay et al., 2014; Plunkett & Dyson, 2019; Woodroffe et al., 2017). In these studies, a range of partnership activities were conducted, some meeting this review's requirement for activities to have a career awareness and knowledge sharing focus, whilst others did not. The data from all industry participants are combined, and data specific to career awareness and knowledge sharing activities cannot be extracted. Hence, not all industry data are necessarily related to ISP activities focused on knowledge sharing and career awareness. These studies are summarised below.

Plunkett and Dyson (2019) collected data from 13 organisations involved in the Broadening Horizons pilot programme, an ISP program in Australia. Industry members were from universities, Government organisations, local councils, and fire and emergency service organisations. Surveys were utilised; however, industry data cannot be viewed separately as both teacher and industry partner data are combined. The authors also undertook focus groups, which provided some industry quotes related to challenges and reasons for participation. With regards to reasons for participation, one participant highlighted that student understanding of pathways, and the real world of work was their aim, whilst another saw untapped opportunities for their industry (Department of Justice) to prevent students entering the criminal justice system. One participant thought "*reacquainting themselves with their own pathways and reignite their own passions to help students experience what we are aiming to do...*" was a benefit to their staff members (Plunkett & Dyson, 2019, p. 101). Challenges reported by industry participants included: understanding if they were having an impact and wanting evidence to validate, time, budget, and process constraints.

Hernandez-Gantes et al. (2017) described an information technology (IT) career academy and industry partnership. Interviews with 17 industry participants provided several quotes highlighting reasons for participation, and the importance of the career specialist in the program's success. One participant highlighted their reasons for participation as wanting to promote careers to feed their own employee pipeline and to invest in the next generation. The authors note these reasons as being evident across all interviews. Three quotes from industry show the career specialist was a critical element for success. Two additional industry quotes state they were proud to be involved in the academy.

Another career academy, but related to the health industry, was described in Luaces et al. (2019). Data were collected from seven key health system stakeholders via group interviews, and findings emphasised university funding to run the program as a barrier. Two participants highlighted the need to attract workforce as a goal of their involvement, with one wanting formal agreements and targeted activities to see outcomes.

Malin et al. (2020) examined two of 12 career academy schools in a district in the southern United States of America in depth. Each school involved may have multiple career academies, including hospitality, marketing, business, and innovation. Eight industry partners provided interview data

highlighting power imbalances between themselves and the school, and difficulty making changes.

Howitt et al. (2009) evaluated the Australian Scientists in Schools pilot project. The objectives of this project's partnerships align with this review's focus on career awareness and knowledge sharing activities. Data were collected from 13 teacher-scientist partnership interviews, 96 teacher and scientist feedback sheets, and 194 online surveys from scientists. However, results were not detailed in the article. The authors summarised benefits to scientists from the project, including communicating and raising awareness about their work to the community and improved job enthusiasm.

Kakalia et al. (2019) described a health-related ISP in Hawaii. Some activities as part of this partnership, including the educational enrichment activities between health staff and students, met the criteria for this review. This study did not provide a clear methodology. However, they did state that "*faculty feedback by observation and discussion with students were conducted*" (Kakalia et al., 2019, p. 43), in this instance the students referenced are university students playing the industry role of an ISP. The quotes provided in the article from university students highlighted that the program was viewed favourably, with one participant highlighting that they learnt from the children, with another hoping the program continues.

Pillay et al. (2014) focused on the effectiveness and efficiency of 12 of 120 ISPs which form part of the Gateway Schools initiative in Queensland, Australia. These 12 ISPs span the building and construction, manufacturing and engineering and minerals and energy industries. Whilst not all ISP activities in this initiative met the criteria for this review, such as work placements, the group mentoring as part of a weeklong partnership activity, and workplace excursions are suitable for inclusion. Through semi-structured interviews with eight business partners, barriers including time and the inflexible nature of school-based training were highlighted along with project outcomes not being realised. One participant expressed that they were happy to play a greater role with students. Unfortunately, all participants thought there was no impact on school system policies, even after 10 years of operation.

Woodroffe et al. (2017) evaluated the Pathways to Success project in Australia which investigates a partnership model for career education. ISP activities focused on priority industry sectors identified as advanced manufacturing, food and agriculture and tourism. Eight industry partners were interviewed, with four stating that they wanted to showcase their industry and stories (including two respondents from the agricultural industry), and two respondents highlighting a desire to continue the partnerships.

Bennet and Thompson (2011) examined the superintendent's role in developing ISPs. Through this study, seven chamber of commerce members provided quotes related to their motivations to participate in these ISPs and highlighted benefits to them. The members were from the following fields: banking (three), insurance (one), landscaping (one), entertainment (one), executive (one). Two participants highlighted wanting to improve student skills as a motivation to participate. One participant wanted to promote their business, a different individual found benefits to the community as a reason to support the partnerships, and another recognised the need for continuing relationships.

Butler and Poekert (2018) described the formation of a STEM Education Council, consisting of industry members wanting to improve STEM education in the district. A method was not provided. However, a statement about what members of the STEM Education Council members felt they could contribute was provided, indicating data were collected in some way from industry participants. Possible contributions included "*field trips, and opportunities to explore real-world situations*" (Butler & Poekert, 2018, p. 213) indicating industry members were willing to participate in knowledge and career awareness type activities.

Industry Perspectives from Participants in Unrelated ISPs. Two studies gathered data from industry participants who had previously participated in a partnership activity (Hoff, 2002; Kirschenbaum & Reagan, 2001). Data collection was not defined to one partnership or program, and these studies are summarised below.

Hoff (2002) surveyed 327 businesses to explore their views on partnerships with schools. Most agreed that businesses were obligated to assist education, and that they should devote resources towards individual schools rather than at the district/state/national level. Enhancing community goodwill was a major reason for becoming involved in a partnership along with improving the skills of future employees. More than half of the respondents hoped to improve the following educational areas because of their partnership: school equipment/technology, student work ethic, academic achievement of students, student attendance/dropout rate, vocational skills of students. Fifty-six percent of respondents thought the goals of their previous partnership involvement was explicit, with most stating their partnerships were successful. Thirty-seven percent thought that measures of success for the partnership were identified, however many were not involved in determining them. These measures of success were not identified through the survey. Proximity to school, amount of interest at a school and dynamic leadership were important characteristics used for selecting schools to partner with. Formal feedback was rarely provided by the school, with informal communication more likely. Loss of key personnel was a major reason for failure or loss of momentum in the partnership.

Kirschenbaum and Reagan (2001) interviewed 57 program directors from universities to examine the school-university collaboration process. In these ISPs, the university was playing the role of industry and participants came from the educational, medical, and cultural divisions of the university. Whilst not all programs would fit this review's criteria, the following program types may meet the criteria: curricular enrichment (n=26), school-to-work (n=seven) and tutoring/mentoring (five). However, limited information is provided to understand how many programs would meet this review's criteria. Interviews highlight that 67% of programs had a strong commitment to collaboration and would continue if the program leader was no longer involved, whereas 16% of programs would cease. Unsatisfactory collaboration was associated with *“poor communication, the transience of school staff, and the lack of shared investment in the program”* (Kirschenbaum & Reagan, 2001, p. 492). Program directors expressed frustration about the *“lack of time, financial resources, and knowledge about effective collaboration with the schools”* (Kirschenbaum & Reagan, 2011, p. 492). They perceived assistance to evaluate their programs, and research about these types of collaboration as most helpful. The authors highlighted that *“they seemed to be looking for a way to streamline the collaborative process and make it work more efficiently”* (Kirschenbaum & Reagan, 2001, p. 494).

Industry Perspectives Related to Partnerships in General. Three studies gathered data from a wide range of industry participants (Badgett, 2016; Carter et al., 2009; Morris et al., 2021) and participants may or may not have participated in an ISP previously. These studies are summarised below.

Carter et al. (2009) surveyed 135 industry participants, from no specific industry, to examine industry networks' potential role in expanding employment opportunities for youth with and without disabilities. Half received a survey specifically referencing youth with disabilities, whilst the other half referenced youth. Over two thirds of the chambers of commerce surveyed indicated that their organisation sometimes or frequently worked with high schools, with responses reflecting a general willingness to partner with local high schools. Many respondents thought that their organisation could partner with a local high school to: co-sponsor a job fair, co-sponsor a job shadowing day or career exploration event, offer mock interviewing or resume writing practice, or offer job shadow experiences. Across these activities, organisations whose survey referenced youth with disabilities were less likely to participate. Only 10.7% of respondents indicated that they had participated in one of the 17 listed activities in the past year, with the

most common activities being “meeting with schools to talk with youth about what businesses are looking for in employees (11.5%), including information about the school’s vocational programs on their website/newsletters (9.9%), and co-sponsoring a “job shadowing” day or career exploration event (9.9%)” (Carter et al., 2009, p. 152). Whilst many organisations had missions which involved supporting youth, there was often a lack of involvement during the past year for which the reasons are unclear.

Badgett (2016) interviewed 18 business leaders to explore school-business partnerships from a business perspective. The major themes from these interviews were collaboration and common purpose, including relationships, communications, trust, and the future of students. He identified results and follow through as a minor theme, including quotes about return on investment, integrity, and responsibility. The interviews highlighted that business leaders want to support schools and their leaders to improve student success. Several quotes emphasise the importance of communication, two highlight trust, two feature return on investment, and two refer to student success. One highlighted using the partnerships to find workforce, whilst institutional limitations were also noted.

Morris et al. (2021) interviewed four STEM industry professionals after a two-day professional learning event with early career teachers to explore how a partnership could support them. Industry participants and teachers discussed partnerships as longitudinal relationships that would allow for diverse experiences to be offered over time. Industry participants also highlighted the need to establish clear motives and goals.

This systematically ordered review of studies researching industry perceptions of ISPs elicited four findings, four major limitations and three recommendations. These are discussed below.

Summary

Firstly, amongst the peer-reviewed literature, limited research exists that focuses on industry participants perceptions of career and knowledge sharing ISPs. Only two studies specifically aimed to investigate industry perspectives of ISPs. The remaining 13 studies collected some data which included industry perspectives as part of a different aim and highlighted a clear gap in the literature.

Secondly, the most common reasons for participation included promoting careers and/or their industry and enhancing community goodwill. However, industry member reasons for participation were varied, some participated for personal gain, whilst others noted benefits to their community, business and/or wider industry. The range of responses indicates that there is likely no singular approach to partnership success.

Thirdly, the most common barriers or challenges in participating included time, budget, and process constraints, and understanding the partnership’s impact. However, there was a range of barriers and challenges identified. In some instances, higher level executives and school coordination prevented partnerships forming, or becoming successful. This highlights the complexity and diversity of ISPs and the interrelation between different stakeholders. This resonates with Bronfenbrenner’s Ecological Systems Theory (Bronfenbrenner, 1981). ISPs can be described as an ecosystem, made up of interrelated settings, each having different influences on the core partnership. Whilst the core partnership consisting of an industry partner, teacher and students may try to form an effective relationship, other external factors such as education departments, company demands, and policy may have influence on partnership success.

Finally, communication, trust, relationships, and setting clear goals are often important factors highlighted for successful partnerships. Again, different perspectives are provided by industry participants. In different partnerships, some factors were highlighted more than others and again demonstrated the diversity in ISPs and that one approach may not meet every partnership need.

Limitations

Four major limitations to the findings have been distilled from the reviewed literature. These limitations stem from (a) the lack of data collected from industry about their perspective of ISPs, (b) inability to uncouple data relating specifically to career awareness and knowledge sharing activities from other types of ISP activities excluded from this review, (c) lack of theoretical frameworks used to investigate industry perspectives of ISPs, (d) lack of geographic diversity in research settings with all studies located in the USA or Australia. These limitations highlight the elusiveness of research exploring industry perceptions of career awareness and knowledge sharing based ISPs.

The first limitation of these findings was the lack of data collected from industry about their perspective of ISPs. Only two studies specifically aimed to collect data on industry perspectives of ISPs. All other studies reviewed collected perceptions from industry with other aims, often to explore an ISP in general. This restricted the data available, as many studies collected limited information from industry participants.

The second major limitation was the inability to uncouple data relating specifically to career awareness and knowledge sharing activities from other types of ISP activities excluded from this review. As many studies explored a partnership(s) with a range of activities, not all industry participants participated in activities meeting this review's criteria. This leads to the findings distilled from this review being potentially skewed from industry perceptions of excluded partnership activities.

The third limitation was the lack of theoretical frameworks used to investigate industry perspectives of ISPs. Due to the lack of studies specifically aiming to explore industry perspectives of ISPs, where theory has been used to investigate findings, often these are not applicable. In those studies which did explore industry perspectives of ISP, theoretical frameworks were not discussed. This leads to a large literature gap which could be filled by exploring theoretical frameworks related to industry participation and perspectives of ISPs.

Recommendations

Due to most studies not solely focusing on industry perspectives, recommendations were often not applicable to this review. However, several studies identified the need for (a) further study of ISPs analysing a wider range of stakeholders; (b) enhanced understanding of the ISP process and dynamics of sustainability and program stewardship; (c) further study of ISP under different conditions, including geographical areas and school configurations.

Two studies advocated for further study of ISPs analysing a wider range of stakeholders. Bennet and Thompson (2011) recommended further research using mixed method approaches to analyse wider stakeholder responsiveness and motivation. Likewise, Badgett (2016) proposed further research to understand business leaders' perspectives in not-for-profit organisations. This aligns with the clear gap in literature exploring perspectives of industry in ISPs.

Kakalia et al. (2019) advised having a project coordinator to create sustainability for the project. Aligning with this, they suggested exploring ways to improve stewardship and sustainability of programs. Bennet and Thompson (2011) also recommended further studies to determine the effects of key participant departure, an important aspect of project sustainability.

Badgett (2016) suggested further research to understand business leaders' perspectives in other geographical locations. Similarly, Hernandez-Gantes et al. (2017) encourage further research using a multiple case study approach to explore ISPs under different conditions e.g., geographical areas or school configurations. These recommendations align with the identified lack of research into industry perspectives of ISPs.

Discussion

The literature highlights a range of industry perspectives of ISPs, demonstrating that many industry participants had positive experiences with ISPs. However, many studies indicated challenges and issues to resolve for partnership success and sustainability (Kirschenbaum & Reagan, 2001; Malin et al., 2020; Pillay et al., 2014; Plunkett & Dyson, 2019). Whilst no two partnerships were the same, and individual industry representatives often identified different desires, needs and challenges, the following recommendations can be applied and trialled with an aim to improve partnership success and/or sustainability. Whilst the authors sought to specifically apply recommendations to agricultural ISPs, the following is applicable across any industry.

A variety of challenges were noted in the literature such as time, budget constraints, inflexible nature of schools, setting clear goals, communication, respect, and trust between parties. If these challenges can be addressed at the outset, more successful partnerships may be formed. Addressing these challenges is recommended to help both schools, teachers, and industry to understand each other's objectives, abilities, and constraints, to help build a partnership which can benefit all involved.

Hernandez-Gantes et al. (2017) highlighted that a career specialist, who helped to coordinate partnerships, was critical to their success. Many other ISPs studied also indicate a separate party helped to initiate, build, and coordinate partnerships (Pillay et al., 2014; Plunkett & Dyson, 2019). A partnership coordinator may help alleviate some of the challenges listed above, whilst improving other aspects such as organisation and coordination of the partnership. Utilising partnership coordinators/brokers is not a new concept and is common amongst ISPs. For example, in Australia, numerous programs have funded partnership brokers, including the national School Business Community Partnership Brokers Program (2010-2013), and through current initiatives such as the Victorian Local Learning and Employment Networks (LLENs) and Queensland's Gateway to Industry Schools program (Dandolopartners, 2014; Queensland Government Department of Employment, Small Business and Training, 2020; Victorian Department of Education and Training, 2021). However, utilising partnership brokers also raises some concerns. Research has shown stakeholders, in some instances, did not find value in the partnership broker, or considered their role as duplication, especially where schools and industry already had formed partnerships (Dandolopartners, 2014). This is important to consider when planning future ISP programs. The challenges noted led the authors to recommend that ISP programs are designed to include a facilitation role, or other structure, which promotes strong communication and ensures value is found in all involved parties' participation. Duplication of such a role must also be considered with tasks and responsibilities clearly delineated from that of the other parties involved.

What can the Agricultural Industry Learn?

The Australian agricultural industry faces severe workforce shortages, exacerbated by COVID-19 (ABARES, 2021; Deloitte, 2014; Ernst & Young, 2020; Ricketts, 2021). Technological advances, climate change, the global pandemic and changing demographics are shifting the industry's career opportunities (International Labour Organization, 2018; World Bank, 2019; Lund, et al., 2021). Whilst new visa programs and reductions in some agricultural qualification fees have been announced by the Australian government, more is needed to spark early career aspirations in agriculture (Australian Government Department of Foreign Affairs and Trade, 2021; Bernasconi et al., 2020). Career aspirations are often formed early in childhood (Auger et al., 2005; Gore, et al., 2015). If a student is not exposed to the agricultural industry, their opportunity to form career aspirations is limited (Mann et al., 2018). Hence, ISPs pose a potentially useful approach for the agricultural industry to influence and expand the career aspirations of the next generation.

Though the findings and recommendations discussed above are applicable across all industries, an additional recommendation specific to the agricultural industry has been identified. From the studies reviewed, only one included data from a participant who could be identified as from the agricultural industry. This highlights a large gap in the peer reviewed literature and a lack of understanding of the contextual nuances relating to implementing successful ISPs with agriculture. Further research exploring agricultural industry representatives' perspectives of ISPs is therefore recommended.

The authors seek to further explore agricultural industry representatives' perspectives of ISPs and apply this review's recommendations in the rural region of Gippsland in Victoria, Australia. Career options in agriculture are plentiful, diverse and ever-evolving due to technological advances, climate change, the global pandemic and changing demographics (International Labour Organization, 2018; World Bank, 2019; Lund et al., 2021). Although, many school students do not realise the breadth of opportunities available nor are they highly regarded (PIEFA, 2020). Increasing student knowledge of agriculture and the range of associated careers available in Gippsland is intended to improve the perception of job opportunities and result in greater retention of young people in the region, post-secondary school. This forms the rationale of CQUniversity Australia's Raising Aspirations in Careers and Education in Agriculture – Gippsland (RACE Gippsland) project, funded by the Victorian Department of Education and Training (www.racegippsland.com). The recommendations discussed above, to address identified challenges, design support to assist strong communication to ensure value is found for all parties involved, and further explore agricultural industry representatives' perspectives of ISPs will be considered and applied in the design of forthcoming RACE Gippsland programs.

Conclusion

This review of peer-reviewed literature was specific to industry perceptions of ISPs. It has used a method consistent with analytic processes accepted by the social science disciplines. The finding's limitations have been acknowledged. Results confirmed that limited peer reviewed research has investigated industry perceptions of ISP where career awareness and knowledge sharing are the focus of the activities. A range of benefits, barriers and reasons for participating are highlighted across studies, with studies showing industry are willing to take part.

Whilst this review's findings can be applied across the globe, to any industry, the authors seek to apply them to agricultural ISPs. At this time where workforce shortages in agriculture are commonplace, ISPs pose a potential way to promote the industry and the wide range of careers associated. Accordingly, research into the perspectives, benefits and barriers for rural agricultural industry participants must ensue to help create purposeful ISPs as the world of work continues to rapidly change.

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