

The Impact of University Life During the COVID-19 Pandemic on Fundamental Competencies for Working Persons: Focusing on Negative Effects

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Abstract

This study investigates how university life during the COVID-19 pandemic (2020–2024) affected Japanese students' Fundamental Competencies for Working Persons, with particular attention to negative effects. In recent years, transferable competencies beyond academic knowledge have become increasingly important; however, prolonged restrictions during the pandemic raised concerns about students' skill development. Using large-scale diagnostic data from the “Fundamental Competencies for Working Persons in the VUCA Era” assessment, this study analyzed responses from 2,195 third-year university students. Multiple regression analysis was conducted to examine the relationships between competency scores, the length of the COVID-19 period experienced in university life (measured in months), and students' primary activities, such as part-time work, seminars, and hobbies. The results indicated that a longer COVID-19 period had significant negative effects on overall competency scores as well as on all three core abilities. Among them, the Ability to Work in Teams showed the strongest negative association with pandemic duration, suggesting that prolonged limitations on face-to-face interaction critically hindered teamwork development. In addition, greater engagement in hobbies was negatively associated with the Ability to Take Action and the Ability to Think Thoroughly. These findings suggest that reduced experiential and collaborative opportunities, along with increased involvement in individual and non-collaborative activities, contributed to the decline in students' competencies.

Keywords: Fundamental Competencies for Working Persons, COVID-19 pandemic, university students, negative effects, transferable skills

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Introduction and Background

In recent years, higher education has increasingly emphasized competencies beyond specialized academic knowledge. Rapid industrial transformation, globalization, and digitalization have intensified the demand for transferable skills such as communication, collaboration, adaptability, and self-management, which have been widely conceptualized as employability or generic skills in international policy frameworks (Allen Consulting Group & NCVER, 2004; NCVER, 2003).

The COVID-19 pandemic further accelerated these changes by drastically altering university life. From 2020 onward, students experienced prolonged periods of online learning, reduced face-to-face interaction, and limited opportunities for practical training, internships, and extracurricular activities. These changes raised concerns regarding the development of fundamental competencies required for future employment. At the same time, many countries have recognized a growing mismatch between what students learn in educational institutions and what is required in the labor market. In response, various frameworks have been developed internationally to conceptualize and assess universal or transferable skills.

This study focuses on how such competencies were affected during the COVID-19 pandemic, with particular attention to negative impacts on university students.

International Frameworks and COVID-19 Impacts on Student Competencies

Internationally, several frameworks have been proposed to define and measure competencies beyond academic achievement. In the United States, concepts such as Social Competency, Employability Skills, Workplace Competencies, and 21st Century Skills emphasize socio-emotional abilities, behavioral characteristics, and problem-solving skills required in modern workplaces, and social and emotional competencies have been systematically conceptualized through frameworks such as the CASEL model (CASEL, 2020), as well as broader conceptions of 21st century skills that integrate cognitive, interpersonal, and intrapersonal competencies (Partnership for 21st Century Learning, 2019).

In Australia, the Generic Skills framework, developed through collaboration between government and industry, identifies eight core abilities, including communication, teamwork, problem-solving, initiative, and technology use. These skills were designed collaboratively by the government and industry to prepare graduates for diverse and changing work environments.

Canada's Employability Skills 2000+ framework, developed by the Conference Board of Canada, categorizes competencies into Fundamental Skills, Personal Management Skills, and Teamwork Skills, and has been widely applied in education and employment policy contexts (Conference Board of Canada, n.d.).

Studies conducted during the COVID-19 pandemic across these countries reveal several common trends. Communication and teamwork skills tended to decline due to reduced face-to-face interaction and experiential learning opportunities. At the same time, ICT skills and self-directed learning abilities often improved as online education became widespread. However, many students experienced increased stress, loneliness, and reduced motivation, which negatively affected personal management skills such as self-regulation and self-efficacy. Previous studies have also highlighted the rapid pedagogical shifts in higher

education during the pandemic and their implications for student learning experiences (Connor et al., 2021).

Table 1

Summary of Previous International Studies

Country	Framework	Main Findings
United States	Social Competency	Emotional control and expressivity decreased, while social sensitivity increased.
Australia	Generic Skills	Communication and teamwork declined; learning and technology skills improved.
Canada	Employability Skills 2000+	Fundamental Skills: Decline / Digital shift Personal Management Skills: Growing gap Teamwork Skills: Fewer opportunities / New forms

Empirical studies conducted during the COVID-19 pandemic have consistently reported declines in social-emotional skills, increased psychological distress, and disruptions in learning experiences among university students (Cerutti et al., 2024; Colby et al., 2023; Houlden & Veletsianos, 2022). In particular, reduced psychological need satisfaction has been associated with lower learning engagement in higher education contexts (Eckley et al., 2022).

Despite these findings, existing research has limitations. Many studies focus on specific educational contexts, rely on self-reported data, or use relatively small samples. Moreover, few studies incorporate behavioral or workplace-related perspectives, and students' broader lifestyles and extracurricular experiences are often insufficiently considered.

Positioning of Japan and Research Question

In Japan, the primary framework for evaluating transferable skills is the Fundamental Competencies for Working Persons, defined by the Ministry of Economy, Trade and Industry (METI, 2006). This framework emphasizes the ability to work collaboratively with diverse people in workplaces and communities and consists of three competency domains—Action, Thinking, and Teamwork—comprising twelve specific elements.

Figure 1*Japan's Framework: Fundamental Competencies for Working Persons*

Previous domestic studies conducted during the COVID-19 period have reported changes in some aspects of fundamental competencies for working persons, particularly in specific educational contexts such as remote university classes (Maeda et al., 2022). Similar trends have also been observed in domestic studies conducted during the pandemic, including declines or uneven development in specific components of fundamental competencies for working persons across different educational settings (Endo et al., 2023; Sasaki et al., 2023). However, many of these studies focus on limited contexts, use small samples, and rarely examine the relationship between the length of the pandemic period and students' everyday activities, such as part-time work, seminars, or hobbies.

Based on international findings and the limitations of existing domestic research, this study addresses the following research question:

How did university life during the COVID-19 pandemic (2020–2024) affect students' Fundamental Competencies for Working Persons, and how are these effects related to the pandemic period and students' main activities?

The following sections present the research design, analysis, and results addressing this question.

Methods

Data Source and Participants

This study utilized data from the “Fundamental Competencies for Working Persons in the VUCA Era” diagnostic assessment developed by Nikkei HR Development. The total sample comprised 5,335 students from University A and Junior College A in Japan. To examine the

long-term effects of varying durations of COVID-19 exposure on skill development, we restricted our analytical sample to 2,195 third-year students who had experienced different lengths of the pandemic period during their university education.

Measures

Dependent Variables

All dependent variables were measured on a 100-point scale using the standardized diagnostic assessment:

1. Total Fundamental Competencies for Working Persons score: An aggregate measure of overall workplace competencies
2. Ability to Take Action: Capturing initiative, persistence, and proactive behavior
3. Ability to Think Thoroughly: Measuring problem-solving, critical thinking, and analytical skills
4. Ability to Work in Teams: Assessing collaboration, communication, and interpersonal effectiveness

Independent Variables

Independent variables were categorized into six domains:

1. Career and Future Path: Career goals after graduation, participation in internships or fieldwork
2. Learning and Academic Activities: Group projects, independent study, research or seminar participation
3. Social Relationships: Friendships with same-age or different-age peers, connections with working adults
4. Organizational Activities: Leadership or officer roles, cooperative experiences
5. Personal Activities: Engagement in hobbies
6. Background Factors: Field of study (arts/science), pandemic duration (in months), length of university life during COVID-19

Selection of Activity Variables

Among twelve activity items measured in the original assessment, we selected the five most frequently reported activities (those exceeding the mean response rate of 1,126.25) as dummy variables for regression analysis. These activities were: part-time employment ($n = 3,164$), hobbies ($n = 2,437$), research or seminar participation ($n = 1,367$), learning or study for academic transfer ($n = 1,345$), and internships or practical training ($n = 1,317$). This selection procedure reduced potential interpretational complexity while retaining the most representative student activities.

Operationalization of COVID-19 Exposure

The COVID-19 period was operationalized as the 40-month interval from February 2020 to May 2023, corresponding to the period of pandemic-related restrictions on Japanese university campuses. Individual exposure duration was calculated based on each student's university entry cohort: the 2020 cohort experienced 34 months of pandemic conditions, the 2021 cohort experienced 22 months, and the 2022 cohort experienced 10 months. This

variable was treated as continuous in all analyses to capture dose-response relationships between pandemic exposure and competency outcomes.

Statistical Analysis

Multiple regression analysis using the stepwise method was conducted to identify the most parsimonious models predicting each dependent variable. Prior to analysis, multicollinearity diagnostics were performed by examining the correlation matrix; no variable pairs exceeded the threshold of $|r| > 0.9$. The stepwise procedure involved initially including all independent variables and iteratively selecting the model with optimal explanatory power based on statistical criteria (p -to-enter < 0.05 , p -to-remove > 0.10). All analyses were conducted using SPSS version 28, with alpha set at 0.05 for significance testing.

Results

Model Performance

Analysis of variance (ANOVA) demonstrated that all four regression models achieved statistical significance ($p < .001$ for all models). However, the models exhibited modest explanatory power, with R^2 values ranging from 0.16 to 0.28. Specifically, the model predicting Total Fundamental Competencies for Working Persons yielded $R^2 = 0.28$, Ability to Take Action yielded $R^2 = 0.25$, Ability to Think Thoroughly yielded $R^2 = 0.22$, and Ability to Work in Teams yielded $R^2 = 0.16$. The relatively low R^2 values suggest that substantial variance in these competencies remains attributable to factors not captured in the current model.

Total Fundamental Competencies for Working Persons

Two independent variables demonstrated significant negative associations with overall competency scores. COVID-19 exposure duration exhibited a standardized regression coefficient of $\beta = -0.08$ ($p < .05$), indicating that longer pandemic exposure was associated with lower total competency scores. Additionally, engagement in hobbies showed a negative effect ($\beta = -0.07$, $p < .05$), suggesting that students who devoted more time to hobby activities tended to demonstrate slightly lower overall competency levels.

Table 2
Total Fundamental Competencies for Working Persons

Predictor	β	p	95% CI LL	95% CI UL
Constant		< .001	42.953	47.851
Career goals after graduation	.185	< .001	3.829	5.865
Collaborative projects	.169	< .001	3.358	5.284
Same-age friends	.120	< .001	2.207	4.603
Leadership	.128	< .001	2.263	4.188
Independent study	.159	< .001	3.021	4.928
Friends of different gender	.091	< .001	1.466	3.979
Field of study (arts/science)	.085	< .001	1.527	4.013
Younger friends	.072	.002	0.734	3.101
COVID-19 pandemic duration (months)	-.083	< .001	-0.129	-0.050
Hobbies	-.068	< .001	-2.664	-0.754
Research/seminar activities	.056	.004	0.481	2.466
Internship/practical training	.047	.019	0.212	2.339
Working adult friends	.047	.033	0.098	2.300
Academic study/transfer preparation				
Duration of university life during COVID-19 (months)				

Table 3
Ability to Take Action

Predictor	β	p	95% CI LL	95% CI UL
Constant		< .001	32.004	37.797
Career goals after graduation	.173	< .001	4.176	6.627
Collaborative projects	.165	< .001	3.840	6.159
Same-age friends	.112	< .001	2.348	5.258
Leadership	.134	< .001	2.863	5.196
Independent study	.144	< .001	3.111	5.423
Friends of different gender	.073	< .001	1.072	4.123
Field of study (arts/science)	.116	< .001	3.002	5.970
Younger friends	.060	.010	0.459	3.333
COVID-19 pandemic duration (months)	-.051	.007	-0.114	-0.018
Hobbies	-.077	< .001	-3.434	-1.174
Research/seminar activities				
Internship/practical training				
Working adult friends	.063	.005	0.590	3.263
Academic study/transfer preparation				
Duration of university life during COVID-19 (months)				

Ability to Take Action

The regression model for Ability to Take Action revealed a similar pattern of negative effects. COVID-19 exposure duration demonstrated a modest negative association ($\beta = -0.05$, $p < .05$), indicating that prolonged pandemic conditions diminished students' willingness to undertake challenges and initiative-taking behaviors. Hobby engagement exhibited a stronger negative effect ($\beta = -0.08$, $p < .01$), suggesting that greater time allocation to personal hobbies was associated with reduced proactive and initiative-driven behaviors.

Table 4
Ability to Think Thoroughly

Predictor	β	p	95% CI LL	95% CI UL
Constant		< .001	43.067	50.073
Career goals after graduation	.155	< .001	4.098	6.975
Collaborative projects	.167	< .001	4.406	7.123
Same-age friends	.100	< .001	2.213	5.524
Leadership	.115	< .001	2.653	5.273
Independent study	.162	< .001	4.142	6.834
Friends of different gender	.072	.001	1.171	4.651
Field of study (arts/science)	.049	.017	0.377	3.921
Younger friends	.081	< .001	1.317	4.590
COVID-19 pandemic duration (months)	-.087	< .001	-0.184	-0.071
Hobbies	-.068	.006	-3.334	-0.612
Research/seminar activities	.074	< .001	1.221	4.046
Internship/practical training	.062	.013	0.399	3.456
Working adult friends				
Academic study/transfer preparation	.060	.014	0.374	3.370
Duration of university life during COVID-19 (months)				

Ability to Think Thoroughly

For thinking and analytical competencies, COVID-19 exposure duration showed a relatively strong negative effect ($\beta = -0.09$, $p < .01$), indicating that extended pandemic periods substantially impaired students' problem-solving and critical thinking capabilities. Hobby engagement also demonstrated a negative association ($\beta = -0.06$, $p < .05$), suggesting that increased focus on personal leisure activities was associated with modest reductions in analytical thinking skills.

Ability to Work in Teams

The regression analysis for teamwork competency revealed the strongest pandemic effect observed in this study. COVID-19 exposure duration was the sole significant predictor, demonstrating a standardized coefficient of $\beta = -0.10$ ($p < .01$), representing the largest negative association across all competency domains. Notably, hobby engagement did not

emerge as a significant predictor in this model, suggesting that teamwork skills were uniquely vulnerable to pandemic-related restrictions rather than general time allocation patterns.

Table 5
Ability to Work in Teams

Predictor	β	p	95% CI LL	95% CI UL
Constant		< .001	52.022	56.552
Career goals after graduation	.160	< .001	2.780	4.739
Collaborative projects	.104	< .001	1.460	3.339
Same-age friends	.114	< .001	1.778	4.033
Leadership	.086	< .001	1.009	2.857
Independent study	.097	< .001	1.245	3.081
Friends of different gender	.121	< .001	2.060	4.416
Field of study (arts/science)	.061	.005	0.292	2.684
Younger friends	.068	.005	0.275	2.508
COVID-19 pandemic duration (months)	-.109	< .001	-0.156	-0.065
Hobbies				
Research/seminar activities	.094	.002	0.586	2.459
Internship/practical training	.094	.002	0.563	2.553
Working adult friends				
Academic study/transfer preparation				
Duration of university life during COVID-19 (months)	.056	.034	0.006	0.121

Discussion

Mechanisms Underlying Pandemic Effects on Competencies

The consistent negative effects of COVID-19 exposure duration across all competency domains suggest a common inhibiting mechanism: the substantial reduction in real-world experiential learning opportunities. We propose that three competency-specific pathways mediated these negative effects.

For Ability to Think Thoroughly, the dramatic reduction in project-based learning, collaborative problem-solving exercises, and hands-on fieldwork during pandemic restrictions limited students' opportunities to practice logical reasoning, creative thinking, and analytical skill application. The predominantly lecture-based and individual study formats that characterized emergency remote instruction provided insufficient cognitive challenge and feedback mechanisms essential for developing higher-order thinking skills.

For Ability to Work in Teams, the near-complete elimination of face-to-face collaboration, group activities, and interpersonal interaction during prolonged campus closures directly constrained the development of communication skills, cooperative behaviors, and interpersonal competencies. The asynchronous and text-based nature of online interactions proved inadequate for cultivating the nuanced social skills, emotional intelligence, and real-time coordination abilities required for effective teamwork.

For Ability to Take Action, the restricted opportunity structure—characterized by cancelled internships, suspended extracurricular activities, and limited social engagement—reduced students' exposure to situations requiring initiative, risk-taking, and proactive problem-solving. The absence of action-oriented learning contexts likely diminished students' self-efficacy beliefs and motivation to engage in challenging tasks.

The finding that teamwork competency exhibited the strongest negative association with pandemic duration ($\beta = -0.10$) is particularly noteworthy and consistent with international research from the United States, Australia, and Canada. This cross-cultural convergence suggests that collaborative skills are especially vulnerable to social distancing measures and online learning environments, which fundamentally alter the interpersonal dynamics essential for teamwork development.

Interpretation of Hobby Engagement Effects

The unexpected negative associations between hobby engagement and both action and thinking competencies (but not teamwork) warrant careful interpretation. We propose two complementary explanations for this pattern.

Time Allocation Hypothesis

Students who devoted substantial time to personal hobbies may have correspondingly reduced their participation in developmentally beneficial activities such as collaborative projects, research seminars, leadership roles, and social engagement. This zero-sum allocation of discretionary time could have limited exposure to experiences that foster initiative, analytical thinking, and intellectual challenge.

Activity Characteristics Hypothesis

Supplementary data on the most prevalent student hobbies during this period reveal that the top activities were predominantly passive, solitary, and screen-based: video gaming (47.4% of males), YouTube consumption (53.4% of females, 44.8% of males), music listening/concert attendance (46.1% of females, 37.7% of males), and movie/drama viewing (40.2% of females). These activities, while providing stress relief and entertainment, generally lack the interactive, problem-solving, and goal-directed characteristics that promote action orientation and critical thinking skills.

The absence of hobby effects on teamwork competency suggests that this skill domain was primarily constrained by external structural factors (pandemic restrictions on social interaction) rather than individual time allocation choices. Even students who engaged minimally in hobbies experienced substantial teamwork deficits due to the unavailability of collaborative learning opportunities.

Implications and Future Directions

The relatively modest R^2 values (0.16-0.28) obtained in our models indicate that activity participation and pandemic exposure, while significant, account for only a portion of variance in workplace competencies. This suggests the importance of incorporating psychological and motivational variables in future research. The diagnostic instrument employed in this study did not assess constructs such as achievement motivation, growth mindset, career aspirations,

self-efficacy beliefs, or resilience—all of which may moderate or mediate the relationships between environmental constraints and competency development.

Future research should adopt more comprehensive models that integrate: (1) psychological factors (motivation, self-regulation, resilience), (2) social support mechanisms (family, peer, mentor relationships), (3) institutional responses (quality of online instruction, student support services), and (4) individual coping strategies. Longitudinal designs with repeated measures would permit examination of recovery trajectories and identification of factors promoting competency restoration in post-pandemic contexts.

Additionally, qualitative research examining students' lived experiences during the pandemic could illuminate the processes through which restricted opportunities translate into competency deficits, as well as identify protective factors that enabled some students to maintain skill development despite adverse conditions.

Conclusion

This study provides empirical evidence for the negative impact of COVID-19 pandemic exposure on Japanese university students' Fundamental Competencies for Working Persons. Several key findings emerged from our analysis of 2,195 third-year students:

1. Consistent pandemic effects: Longer exposure to pandemic conditions was associated with significant decrements across all competency domains, with effect sizes ranging from $\beta = -0.05$ to $\beta = -0.10$.
2. Differential vulnerability: Teamwork competency ($\beta = -0.10$) demonstrated the greatest susceptibility to pandemic effects, consistent with international research documenting the critical importance of face-to-face interaction for collaborative skill development.
3. Dual mechanisms of impact: Competency deficits appear attributable to both structural constraints (reduced experiential learning opportunities due to campus closures and social distancing) and behavioral adaptations (increased time allocation to solitary, passive leisure activities).
4. Activity-specific effects: Hobby engagement showed selective negative associations with action and thinking competencies but not teamwork, suggesting that time allocation to individual leisure activities may compete with developmentally beneficial activities in some domains while having negligible impact in others.

These findings underscore the substantial educational costs of prolonged disruption to traditional university experiences and highlight the inadequacy of emergency remote instruction for developing interpersonal and applied competencies. As higher education institutions navigate post-pandemic recovery and prepare for potential future disruptions, our results emphasize the critical importance of preserving opportunities for collaborative learning, practical application, and social engagement—experiences that cannot be fully replicated in virtual environments.

The modest explanatory power of our models points to the need for future research incorporating psychological, motivational, and institutional factors to develop more comprehensive understanding of the multifaceted determinants of workplace competency development in crisis contexts.

Declaration of Generative AI and AI-Assisted Technologies in the Writing Process

The author declares that ChatGPT, an AI-assisted writing software, was used for proofreading the manuscript and refining linguistic expressions. Its use was limited to correcting grammatical and spelling errors, as well as restructuring expressions for accuracy and clarity. The author further declares that no AI or AI-assisted technology other than ChatGPT was used to generate content in the creation of this manuscript. The ideas, design, procedures, results, analysis, and discussion in this paper were independently written and derived by the author based on the careful and systematic conduct of research.

References

- Allen Consulting Group, & NCVER. (2004). *Recognizing and recording employability skills*. ERIC. <https://files.eric.ed.gov/fulltext/ED536202.pdf>
- CASEL (Collaborative for Academic, Social, and Emotional Learning). (2020). *SEL framework: What are the core competence areas and where are they promoted?* <https://casel.org/casel-sel-framework-11-2020/>
- Cerutti, J., Burt, K. B., Moeller, R. W., & Seehuus, M. (2024). Declines in social-emotional skills in college students during the COVID-19 pandemic. *Frontiers in Psychology*, 15, 1392058. <https://doi.org/10.3389/fpsyg.2024.1392058>
- Colby, A., Fereday, B., Le, N. Q., & Malin, H. (2023). A longitudinal study of US college students before and during the Covid-19 pandemic. *Journal of American College Health*, 73(1), 290–300. <https://doi.org/10.1080/07448481.2023.2220391>
- Conference Board of Canada. (n.d.). *Employability Skills 2000+*. https://obecurriculumsessions.wordpress.com/wp-content/uploads/2014/01/wednesday_employability-skills-20001.pdf
- Connor, M., Mueller, B., Mann, S., & Andrew, M. (2021). Pivots, pirouettes and practicalities: Actions and reactions of work-integrated learning practitioners. *Journal of University Teaching & Learning Practice*, 18(5), Article 2. <https://doi.org/10.53761/1.18.5.2>
- Eckley, D., Allen, A., Millear, P., & Rune, K. T. (2023). COVID-19's impact on learning processes in Australian university students. *Social Psychology of Education*, 26(1), 161–189. <https://doi.org/10.1007/s11218-022-09739-x>
- Endo, M., Takeda, R., Ito, M., Ogura, M., & Takahashi, Y. (2023). Changes in fundamental competencies for working persons through alternative training for integrated practicum during the COVID-19 pandemic: Differences in students' self-evaluation between two types of practicum. *Journal of Sendai Aoba Gakuin Junior College*, 14(2), 9–24.
- Houlden, S., & Veletsianos, G. (2022). A synthesis of surveys examining the impacts of COVID-19 and emergency remote learning on students in Canada. *Journal of Computing in Higher Education*, 34, 820–843. <https://doi.org/10.1007/s12528-022-09323-4>
- Maeda, K., Suzuki, F., Higashihara, F., Narisou, M., Yoshinaka, Y., Matsuki, Y., & Ikegawa, T. (2022). Changes in fundamental competencies for working persons before and after remote university physical education classes during the COVID-19 pandemic. *Japan Journal of Higher Education Physical Education and Sport*, 19, 62–72.
- Ministry of Economy, Trade and Industry (METI). (2006). *Fundamental competencies for working persons*. <https://www.meti.go.jp/policy/kisoryoku/>

NCVER. (2003). *Defining generic skills: At a glance*.

https://www.ncver.edu.au/__data/assets/file/0020/4457/nr2102b.pdf

Partnership for 21st Century Learning (P21). (2019). *Framework for 21st century learning*.

Battelle for Kids. <https://www.battelleforkids.org/networks/p21>

Sasaki, M., Kiriake, M., Furudate, M., & Tanaka, K. (2023). Comparison of nursing students' self-evaluation of fundamental competencies for working persons: Impacts of the COVID-19 pandemic. *The Bulletin of Hachinohe Gakuin University*, (66), 131–142.