

Kartlegging og registrering av atferd

Med hovedvekt på kap. 3 -5 i Cooper et al. (2007)

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Uavhengig og avhengig variabel

Uavhengig variabel

Avhengig variabel

Det som blir endret i et eksperiment

Det som blir målt i et eksperiment

X-variabel

Y-variabel

Vanligvis kalt årsak

Vanligvis kalt effekt

I atferdsanalytiske eksperimenter er dette miljømessige forandringer

Atferden til organismen

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Ulike metoder

- Indirekte metoder
 - Intervju
 - Intervju av personen selv
 - Intervju av viktige nærpersioner
 - Sjekklister
- Direkte metoder
 - Standardiserte tester
 - Direkte observasjon

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Kriterie for atferdsforandringer

- Dette henger sammen med:
 - Økning av atferd
 - Opprettholdelse av atferd
 - Generalisering av adaptiv, ønskelig atferd
 - Redusering av maladaptiv, uønsket atferd
 - Samt at endringene skal føre til at personens liv blir forbedret på meningsfull måte

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Van Houten (1979) on social valid goals:

1. Assess the performance of people judged to highly competent
2. Experimentally manipulate different levels of performance to determine empirically which produces optimal results.

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Målbare dimensjoner av atferd

- Repterbarhet
 - Tilfeller av en responsklasse kan forekomme gjentatte ganger (kan telle antall)
- Tidsmessig utstrekning
 - Hvert tilfelle av en atferd forekommer i løpet av et tidsrom (kan måle varighet)
- Tidsmessig locus
 - Hvert tilfelle av en atferd forekommer på et spesielt tidspunkt i forhold til andre hendelser (kan måle når atferd forekommer)

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Dimensjoner ved atferd

- ❖ Antall
 - ❖ Rate = antall/tidsenhet
- ❖ Varighet
- ❖ Intensitet
- ❖ Latens eller reaksjonstid

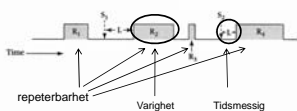
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Målbare dimensjoner av atferd

Figure 4.1 Schematic representation of the dimensional quantities of repeatability, temporal extent, and temporal locus. Repeatability is shown by a count of four instances of a given response class (R_1 , R_2 , R_3 , and R_4) within the observation period. The temporal extent (i.e., duration) of each response is shown by the raised and shaded portions of the time line. One aspect of the temporal locus (response latency) of two responses is shown by the elapsed time (L) between the onset of two antecedent stimulus events (S_1 and S_2) and the initiation of the responses that follow (R_1 and R_2).



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Registreringsteknikker

- 1) Automatisk
- 2) Ved sluttprodukter
- 3) Ved direkte observasjon
 - a) Hendelsesregistrering
 - b) Frekvensregistrering
 - c) Varighetsregistrering
 - d) Intervallregistrering
 - i. Kontinuerlig observasjon med intervall registrering
 - ii. Tidsutvalgelse ("momentary time sampling")

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Registrering #1

- Hendelsesregistrering
 - Verktøy
 - "Sautellere"
 - Digitale tellere
 - Fyrstikker
 - Etc.

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Hendelsesregistrering/Event recording

Session date: May 27 Session no: 56 Observer: Jette
 Target child: Jorhan Peer: Elinn KVA dir: (C) No
 Target behavior: "Point block on floor/felt Condition: 3-sec 10mg delay
 Løse: C is correct N is No response A is Approximation I is Inappropriate

Child	Target child's behavior	Teacher behavior	Peer's behavior	Teacher response
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				

No corrects by target child: 0 No corrects by peer: 0

Target behavior: "Point at block on paper" Condition: 3-sec 10mg delay

Child	Target child's behavior	Teacher behavior	Peer's behavior	Teacher response
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				

No corrects by target child: 0 No corrects by peer: 0

Figure 4.5 Data collection form for recording the behavior of two children and a teacher during a series of discrete trials. Adapted from the manual for the Center of a Best Group at the Association of Junior State of High Schools with permission by J. Hall (2004) at the Department of Special Education, The Ohio State University, under permission.

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Registrering #2

- Tidsregistrering
 - Varighet
 - Latenstid eller reaksjonstid
 - Interresponstid

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Varighet

- 1) Varighet av målrespons er for lang eller for kort
- 2) Høye rater og hvor hendelsesregistrering er vanskelig
- 3) Hvor det ikke er en klar start og slutt på målresponsen
- 4) Oppgave orienterte eller kontinuerlige typer av atferd
- 5) Varighet per forekomst benyttes ofte framfor et mål på total varighet fordi dette gir både antallet og den totale varigheten
- 6) Økning eller reduksjon av varighet av en atferd

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Latenstid eller reaksjonstid

- 1) Dersom målatferden framkommer med for kort eller lang latenstid
- 2) Reduksjon i latenstid kan være viktig informasjon om økt mestring

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IRT

- 1) Viktig mål når tiden mellom responser eller regulering av atferd som er i fokus
- 2) Korrelert med responsrate
- 3) DRL eller DRH skjemaer

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Interresponse time



Figure 4.2 Schematic representation of three interresponse times (IRT). IRT, the elapsed time between the termination of one response and the initiation of the next response, is a commonly used measure of temporal locus.

Deriverte mål

- Prosent
- Trials-to-criterion

Definisjonsmessige mål

- Topografi
- Magnitude

Topography recording

Figure 4.3 Topography, the physical form or shape of behavior, is a measurable dimension of behavior.

topography
 TOPOGRAPHY
 Topography
 topography
 topography
 topography
 Topography

Registrering #3

- Tidsutvelgelse
 - Registrering av hele intervaller
 - Registrering basert på "partial" intervaller
 - Registrering basert på tidsutvelgelse
 - Planlagte aktivitetsjekker

Whole-interval recording

One Task Recording Form

Observer: Mike E. Observer no.: 11
 Subject: ID no.: Sex: Age: Sex:

Experimental condition: Baseline On task **Off-task**

Obs. time: 08:45 Stop time: 09:15

Figure 4.8 Observation form used for whole-interval recording of four students being on task during independent reading time.

Adapted from Strick, Ross, and Spence. Effects of task assignment and reinforcement on the acquisition and maintenance of reading skills in a classroom setting. *Journal of Applied Behavior Analysis*, 1978, 11, 1-10.

Interval	Student 1	Student 2	Student 3	Student 4
1	On	On	On	On
2	On	On	On	On
3	On	On	On	On
4	On	On	On	On
5	On	On	On	On
6	On	On	On	On
7	On	On	On	On
8	On	On	On	On
9	On	On	On	On
10	On	On	On	On
11	On	On	On	On
12	On	On	On	On
13	On	On	On	On
14	On	On	On	On
15	On	On	On	On
16	On	On	On	On
17	On	On	On	On
18	On	On	On	On
19	On	On	On	On
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22	On	On	On	On
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26	On	On	On	On
27	On	On	On	On
28	On	On	On	On
29	On	On	On	On
30	On	On	On	On
31	On	On	On	On
32	On	On	On	On
33	On	On	On	On
34	On	On	On	On
35	On	On	On	On
36	On	On	On	On
37	On	On	On	On
38	On	On	On	On
39	On	On	On	On
40	On	On	On	On
41	On	On	On	On
42	On	On	On	On
43	On	On	On	On
44	On	On	On	On
45	On	On	On	On
46	On	On	On	On
47	On	On	On	On
48	On	On	On	On
49	On	On	On	On
50	On	On	On	On
51	On	On	On	On
52	On	On	On	On
53	On	On	On	On
54	On	On	On	On
55	On	On	On	On
56	On	On	On	On
57	On	On	On	On
58	On	On	On	On
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252	On	On	On	On
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254	On	On	On	On
255	On	On	On	On
256	On	On	On	On
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276	On	On	On	On
277	On	On	On	On
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279	On	On	On	On
280	On	On	On	On
281	On	On	On	On
282	On	On	On	On
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284	On	On	On	On
285	On	On	On	On
286	On	On	On	On
287	On	On	On	On
288	On	On	On	On
289	On	On	On	On
290	On	On	On	On
291	On	On	On	On
292	On	On	On	On
293	On	On	On	On
294	On	On	On	On
295	On	On	On	On
296	On	On	On	On
297	On	On	On	On
298	On	On	On	On
299	On	On	On	On
300	On	On	On	On
301	On	On	On	On
302	On	On	On	On
303	On	On	On	On
304	On	On	On	On
305	On	On	On	On
306	On	On	On	On
307	On	On	On	On
308	On	On	On	On
309	On	On		

Partial-interval recording

Figure 4.7 Portion of a form used for partial-interval recording of four response classes by three students.

	1	2	3	4
Student 1	⊙ T S D N	⊙ T S D N	⊙ T S D N	⊙ T S D N
Student 2	A T ⊙ N	A ⊙ D N	A T S ⊙ N	⊙ T S D N
Student 3	A T S D ⊙	A T S ⊙ N	⊙ T S ⊙ N	A ⊙ D N

Key:
 A = Academic response
 T = Talkative
 S = Out of seat
 D = Other disruptive behavior
 N = No occurrences of target behaviors

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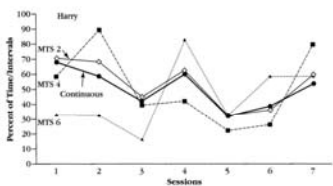
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Sammenligning av måter å registrere

Figure 4.8 Comparison of measures of the on-task behavior of an elementary student obtained by 2-minute, 4-minute, and 6-minute momentary time sampling with measures of the same behavior obtained by continuous duration recording.

From "Efficacy of using momentary time samples to determine on-task behavior of students with emotional/behavioral disorders" by P. L. Gunter, M. L. Vans, J. Patrick, K. A. Miller, and L. Kelly, 2003, *Education and Treatment of Children*, 26, p. 406. Used by permission.

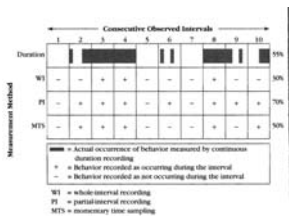


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Figure 4.9 Comparing measures of the same behavior obtained by three different time sampling methods with measure obtained by continuous duration recording.



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Registrering #4: Sluttprodukter

- **Fordeler**
 - Kan gjøre andre ting samtidig
 - Kan gjøre målinger av atferd som forekommer på ugunstige tidspunkter og steder
 - Inter observer agreement og behandlingsintegritet
 - Muliggjør målinger av kompleks atferd og multiple responsklasser
- **Når skal dette brukes**
 - Er det nødvendig med sanntidsmålinger?
 - Kan atferden bli registrert ved permanente produkter
 - Ved å innhente et kunstig sluttprodukt vil det påvirke atferden.
 - Hva er kostnadene ved å foreta og registrere et sluttprodukt?

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Definisjoner

- **Målatferd** er den atferd som gjøres til gjenstand for tiltak eller registrering
- **Målbetingelse** er den betingelse det er et mål at atferden skal forekomme under kontroll av.

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Målinger/registreringer vi kan stole på

- **Valide**
 - Relevant til fenomenet som studeres
 - Grunnlaget for måle akkurat dette
 - a) Sosialt viktig atferd (sosial validitet)
 - b) Registrering av en dimensjon av atferd som er viktig i forhold til den atferden
 - c) Data som samles inn er representative for den atferden
- **Nøyaktige**
 - Dreier seg om hvorvidt den observerte verdien matcher den virkelige verdien
- **Reliable**
 - Konsistente målinger

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Trusler mot validiteten av målingene/registreringene

- Indirekte målinger/registreringer
- Måling av feil dimensjon av målatferden
- Målingsartifakt
 - Ikke-kontinuerlig målinger
 - Svakt planlagte måle eller registreringsperioder

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Reliabilitet

- Test-retest reliabilitet
- Interitem reliabilitet
 - Split-half procedure
- Interrater reliabilitet
 - Frequency ratio
 - Point-by-point agreement ratio
 - Pearson product-moment correlation

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Interobserver agreement

- Interobserver agreement dreier seg om hvorvidt to eller flere uavhengige observatører rapporterer det samme antall forekomster og ikke-forekomster av en atferdsform.
- Kan brukes
 - for å vurdere nye observatører
 - for å oppdage "observer drift"
 - til å vurdere kvaliteten på definisjonen av målatferd
 - til å vurdere hvorvidt forandringer skyldes variasjon i atferd eller mellom observatører

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Tre forutsetninger for valide interobserver agreement målinger

- Bruk av samme observasjonskode og målingssystem
- Observere og registrere den målpersonen(e) og den samme hendelsen(e)
- Observere og registrere atferden uavhengig av hverandre

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Metoder for å beregne IOA

A. I forhold til hendelsesregistrering

- 1) Totalsummen
- 2) Gjennomsnittlig oppsummering per intervall
- 3) Nøyaktig oppsummering per intervall
- 4) Trial by trial IOA

B. I forhold til tid

- 1) Total varighets IOA
- 2) Gjennomsnittlig varighet per forekomst IOA

C. I forhold til intervallregistrering/tidsutvelgelse

- 1) Interval-by-interval
- 2) Skåret intervall IOA
- 3) Ikke-skåret intervall IOA

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$\frac{\text{Minste antall}}{\text{Høyeste antall}} \times 100 = \text{total IOA \%}$

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$\frac{\text{Int 1 IOA} + \text{Int 2 IOA} + \dots + \text{Int N IOA}}{n \text{ intervaller}} \times 100 = \text{gjennomsnittelig ...}$

Figure 5.2 Two methods for computing interobserver agreement (IOA) for event recording data tallied within smaller time intervals.

Interval (Time)	Observer 1	Observer 2	IOA per Interval
1 (1:00-1:05)	##	##	2/2 = 100%
2 (1:05-1:10)	##	##	3/3 = 100%
3 (1:10-1:15)	/	##	1/2 = 50%
4 (1:15-1:20)	##	##	3/4 = 75%
5 (1:20-1:25)	0	/	0/1 = 0%
6 (1:25-1:30)	##	##	4/4 = 100%
Total count = 15	Total count = 15	Mean count-per-interval IOA = 65.3% Exact count-per-interval IOA = 38%	

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$\frac{\text{Antall intervaller p\aa 100\% IOA}}{n \text{ intervaller}} \times 100 = \text{n\oeyaktig ...}$

Figure 5.2 Two methods for computing interobserver agreement (IOA) for event recording data tallied within smaller time intervals.

Interval (Time)	Observer 1	Observer 2	IOA per Interval
1 (1:00-1:05)	##	##	2/2 = 100%
2 (1:05-1:10)	##	##	3/3 = 100%
3 (1:10-1:15)	/	##	1/2 = 50%
4 (1:15-1:20)	##	##	3/4 = 75%
5 (1:20-1:25)	0	/	0/1 = 0%
6 (1:25-1:30)	##	##	4/4 = 100%
Total count = 15	Total count = 15	Mean count-per-interval IOA = 65.3% Exact count-per-interval IOA = 38%	

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Interobserver agreement

$\frac{\text{Antall trials (punkter) med enighet}}{\text{Totalt antall trials (punkter)}} \times 100 = \text{trial by trial IOA \%}$

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$$\frac{\text{Korteste varighet}}{\text{Lengste varighet}} \times 100 = \text{total varighets IOA \%}$$

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$$\frac{\text{Varighet IOA R1} + \text{Varighet IOA R2} + \text{Varighet IOA Rn}}{n \text{ responser med varighet IOA}} \times 100 =$$

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Antall intervall med enighet
 Antall intervaller med enighet + antall intervaller med uenighet

$\times 100 = \text{point-by-point agreement IOA \%}$

Figure 5.3 When calculating interval-by-interval IOA, the number of intervals in which both observers agreed on the occurrence or the nonoccurrence of the behavior (shaded intervals) is divided by the total number of observation intervals. Interval-by-interval IOA for the data shown here is 70% (7/10).

Interval no. >	1	2	3	4	5	6	7	8	9	10
Observer 1	X	X	X	0	X	X	0	X	X	0
Observer 2	0	X	X	0	X	0	0	0	X	0

X = behavior was recorded as occurring during interval
 0 = behavior was recorded as not occurring during interval

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Figure 5.4 Scored Interval IOA is calculated using only those intervals in which either observer recorded the occurrence of the behavior (shaded intervals). Scored Interval IOA for the data shown here is 33% (1/3).

Interval no. →	1	2	3	4	5	6	7	8	9	10
Observer 1	X	0	X	0	0	0	0	0	0	0
Observer 2	0	0	X	0	0	0	0	0	X	0

X = behavior was recorded as occurring during interval
 0 = behavior was recorded as not occurring during interval

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Figure 5.5 Unscored Interval IOA is calculated using only those intervals in which either observer recorded the non-occurrence of the behavior (shaded intervals). Unscored Interval IOA for the data shown here is 50% (2/4).

Interval no. →	1	2	3	4	5	6	7	8	9	10
Observer 1	X	X	X	0	X	X	0	X	X	0
Observer 2	0	X	X	0	X	X	0	X	X	X

0 = behavior was recorded as occurring during interval
 X = behavior was recorded as not occurring during interval

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Betraktninger rundt hvordan IOA skal registreres og rapporteres

- Hvor ofte?
- For hvilke variabler?
- Hvilke metoder skal benyttes for å beregne IOA?
- Hvilke nivåer er akseptable?
- Hvordan skal IOA oppgis?
 - Beskrivelse i teksten
 - Tabell
 - Figur

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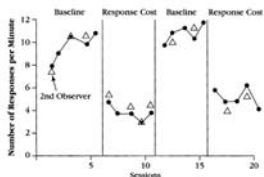


Figure 5.6 Plotting measures obtained by a second observer on a graph of the primary observer's data provide a visual representation of the extent and nature of interobserver agreement.

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